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69

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3 NOTTINGHAM HOUSE: THE HUDSON'S BAY COMPANY IN ATHABASCA, 1802-1806

Karlis Karklins

283 PETER FIDLER AND NOTTINGHAM HOUSE, LAKE ATHABASCA, 1802-1806

Robert S. Allen

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Cover: Artist's conception of the probable appearance of Nottingham House in late September 1805. (Drawing by D. Kappler)

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Karlis Karklins

- 4 Abstract
- 5 Preface
- 8 Introduction
  - 8 Historical Sketch
  - 13 Geographical Setting
  - 15 Archaeological Techniques
  - 16 Stratigraphy
- 23 Description of Features
  - 23 Structure 1 - Main House
  - 47 Structure 2 - Storehouse
  - 54 Structure 3 - Northern North West Company Watch House
  - 58 Structure 4 - Southern North West Company Watch House
  - 59 Borrow/Trash Pits A-B
  - 62 Borrow/Trash Pit C
  - 63 Borrow/Trash Pit D
  - 65 Stone Pile - Garden Area
- 67 Artifact Descriptions
  - 67 Personal Items
    - 67 Textiles
    - 70 Buttons
    - 79 Cuff Links
    - 80 Clothing Buckle
    - 80 Footwear
    - 81 Glass Beads
    - 89 Clay Pipe Stem Beads
    - 89 Perforated Lead Ball
    - 91 Tinkling Cones
    - 94 Silver Brooches
    - 96 Finger Rings
    - 100 Silver Earbob
    - 100 Brass Tube
    - 101 Sheet Iron Pendants
    - 101 Sheet Iron Discs
    - 102 Silver Wire
    - 102 Vermilion
    - 102 Clay Tobacco Pipes
    - 105 Stone Tobacco Pipes
    - 107 Tobacco Box
    - 107 Gallipots
    - 108 Bottles
    - 111 Tinned Iron Box
    - 112 Pocketknives
    - 115 Bone Comb
    - 115 Mirror Fragments
    - 116 Printed Paper
  - 116 Domestic Items
    - 116 Fire Steels
    - 118 Yellow Metal Kettles
    - 127 Kettle Covers
    - 127 Kettle Hook
    - 128 Kitchen (Butcher) Knives
    - 130 Table Knives
    - 131 Unattributable Knife Blade Fragments
    - 131 Pearlware Saucers
    - 132 Glass Stemware
    - 133 Unidentified Glass Tableware
    - 133 Cask Fragments
    - 134 Funnel (?) Fragment
    - 135 Furniture Lock
    - 136 Copper Hinges
    - 137 Thimbles
    - 137 Needle
    - 137 Thermometer Tube
    - 138 Tinned Sheet Iron Handles
    - 138 Tinned Sheet Iron Lug
    - 138 Red Ochre
  - 139 Subsistence and Defence
    - 139 Gun Screw
    - 140 Barrel Fragment
    - 140 Barrel Tangs
    - 140 Barrel Lug
    - 141 Trigger
    - 141 Trigger Plate
    - 141 Trigger Guard
    - 141 Butt Plate
    - 142 Ramrod Thimbles
    - 143 Gun Worms
    - 143 Gunflints
    - 148 Lead Balls
    - 148 Lead Shot
    - 149 Stone Projectile Points
    - 150 Fishhooks
    - 151 Lead Line Weight (?)
  - 151 Tools and Hardware
    - 151 Awls
    - 154 Gimlet
    - 154 Axe Head
    - 156 Plane Iron
    - 156 Flake Knife
    - 157 Homemade Canoe (?) Knife
    - 158 Stone Bifaces
    - 158 Stone Scrapers
    - 159 Files
    - 160 Scoria Abraders
    - 160 Fleshers
    - 161 Thumb Latch Lift Bar
    - 162 Wrought-Iron Nails
    - 172 Brass Wire Nail
    - 172 Brass Tack
    - 172 Pane Glass
    - 173 Ferrous Metal Rings
    - 174 Wire
  - 174 Business Items
    - 174 Lead Seal
    - 175 Slate Pencil
    - 175 Penknife
  - 176 Transportation
    - 176 Brass Bell
  - 176 Miscellaneous
    - 176 Unidentified Ferrous Metal Objects
    - 178 Amorphous Ferrous Metal
    - 178 Sheet Iron Container (?) Remnants
    - 179 Sheet Iron Scrap
    - 179 Miscellaneous Brass
    - 179 Miscellaneous Lead
    - 179 Melted Glass
    - 180 Miscellaneous Stone
    - 180 Unidentified Bone Objects
    - 181 Miscellaneous Worked Bone and Antler
    - 182 Leather and Hide
    - 182 Birchbark
- 183 Discussion and Conclusions
- 216 Appendix A. Identification and Analysis of an Intrusive Burial at Nottingham House, by Jerome S. Cybulski
- 227 Appendix B. Faunal Analysis of Nottingham House, by Anne Meachem Rick
- 267 Appendix C. Inventory of 20th-Century Artifacts Recovered from the Nottingham House Site
- 268 Appendix D. Goods Credited to Servants at Nottingham House, 1802-1805
- 274 Bibliography

85-

ABSTRACT

Situated at the western end of Lake Athabasca near the present-day community of Fort Chipewyan, Alberta, Nottingham House was established in 1802 by Peter Fidler for the Hudson's Bay Company in an attempt to break the rival North West Company's approximately 20-year monopoly on the fur-rich Athabasca region. However, being inferior in number, the English could not adequately compete with their rivals at nearby Fort Chipewyan and were forced to abandon their wintering post just four years later. This was the last real attempt of the English to trade in Athabasca until John Clarke built Fort Wedderburn opposite Fort Chipewyan in 1815.

Excavated by the author during 1972-73 and 1977, the unpalisaded post was found to consist of two Hudson's Bay Company structures (the main house and storehouse), two North West Company watch houses, a garden area and four borrow/trash pits. Although the structures were fragmentary, enough remained to indicate construction techniques and building layouts. Furthermore, a good overview of the post's material culture and subsistence economy is provided by the 5806 cultural objects and 9365 pieces of faunal material that were recovered from the site. Also encountered were a minor prehistorical component, an intrusive burial inhumed between 1815 and 1855 and vestiges of several 20th-century Indian summer camps.

Submitted for publication 1979, by Karlis Karklins, National Historic Parks and Sites Branch, Parks Canada, Ottawa.

PREFACE

The Athabasca region of Canada, encompassing Lake Athabasca, the Slave River and the lower reaches of the Athabasca and Peace rivers and their tributaries, was the El Dorado of the fur trade from the arrival of the first trader in 1778 to the depletion of the fur resources of the area in the 1820s. During this period, at least 40 fur trade posts were established in the region by the North West Company, the Hudson's Bay Company and Alexander Mackenzie's XY Company. However, while several of the posts are of major historical and archaeological importance, few had been located and none excavated before the initiation, in 1968, of the Western Fur Trade Research Programme by the National Historic Parks and Sites Branch, Parks Canada, in accordance with the Historic Sites and Monuments Board of Canada recommendations to interpret this major theme of national historical importance and general interest.

As a first step in the project, Terence Smythe, National Historic Parks and Sites Branch Staff Historian, prepared a report, "Thematic Study of the Fur Trade in the Canadian West, 1670-1870," which presented a detailed discussion of the fur trade posts located in Alberta, Saskatchewan, and Manitoba (Smythe 1968). Then, in 1969, a general reconnaissance of the areas discussed in the report was undertaken by Smythe and James V. Chism, former Staff Archaeologist, to determine the location of fur trade sites, their state of preservation, the technical feasibility of on-site research, the logistic problems of maintaining research parties in the areas under investigation and the status of local interest and research (Smythe and Chism 1969: 1).

One of the areas visited was the west end of Lake Athabasca where several sites were sought, including that of Nottingham House. Unfortunately, English Island, the traditional location of the post, could not be reached because of logistic problems (Smythe and Chism 1969: 93). The next survey team, headed by John S. Nicks of the Provincial Museum and Archives of Alberta, Edmonton, met with better luck and was able to locate and survey the probable site of Nottingham House. Although the site had not been molested, its susceptibility to unauthorized digging coupled with its archaeological research potential prompted Nicks (1970: 26) to recommend excavation at an early date. Consequently, it was decided that the National Historic Parks and Sites Branch would undertake the project in 1972, having investigated a related Hudson's Bay Company post (Fort Wedderburn II; 1817-18) on the other side of the lake the year before. The major objectives of the project were: 1) to confirm the historical identification of the site; 2) to determine the layout of the post and the techniques utilized in its construction; and 3) to obtain a representative sample of artifacts, and faunal and floral remains to help interpret the post's material culture and subsistence economy, respectively.

The systematic excavation of the Nottingham House site, designated IeOt-1 in the Borden system, began on 5 June 1972, with a crew of six university students (Daniel M. Cameron, Gerald T. Conaty, Jackie Ffoulkes-Jones, John J. Hill, Jr., Ellen R. Lee and Susan E.M. Robinson) under the direction of the author, assisted by Kendal L. Arnold. During the next 14 weeks, the fort's main house, two large pits and portions of two North West Company structures were uncovered.

Work continued at the post the following year from 9 July to 17 August. Four students (Raymond Belanger, Carolynn L. Kobelka, Nora L. Hurlburt and Dawne L. Touchings) and one of the project historians, Alan McCullough, headed by myself and Ellen R. Lee, site assistant, completed the excavation of the buildings begun the previous season and exposed two large contiguous pits, as well as two large, enigmatic uprights.

The site was briefly revisited in late August and early September of 1977 to conclude the project. I was assisted by Sharon Keen and Kevin Lunn, material culture researchers with the Prairie Region Office of Parks Canada, Winnipeg. Several test pits were opened in strategic areas resulting in the location and identification of the post's storehouse. This work officially concluded the field project.

I would like to thank the Archaeological Survey of Alberta and the Department of Lands and Forests of Alberta for permitting the excavation of the Nottingham House site which is located on provincial land. Thanks are also extended to Gerald Lyster, recently retired Park Warden of Wood Buffalo National Park, Fort Chipewyan, for providing general assistance to the archaeological field party while it was in the area.

A number of persons from the National Historic Parks and Sites Branch assisted me in preparing this report. Foremost on the list is Ellen R. Lee who helped in various capacities both in the field and the laboratory. Olive R. Jones, Peter J. Priess, Clarence F. Richie, Harvey J. Rogers, Lester A. Ross and Ron Whate of the Material Culture Research Section helped identify and interpret the recovered artifacts. The qualitative and quantitative analysis of selected artifacts was conducted by Charles Costain, M.E. Salmon, Judith Schlieman, Maggie Tugeau and Henry Unglik of the Conservation Division. Andrew Douglas and James Moore of the selfsame division identified the wood, cloth, and leather specimens. A narrative history of Nottingham House and its founder, Peter Fidler, was compiled by Robert S. Allen of the Historical Research Section to facilitate the interpretation of the cultural remains.

The personnel of other organizations also provided invaluable assistance. Anne M. Rick, Head, Zooarchaeological

Identification Centre, National Museum of Natural Sciences, Ottawa, researched the fuanal material and prepared a comprehensive report on her findings. The human skeletal material was analysed by Jerome S. Cybulski, Chairman of the Physical Anthropology Programme, Archaeological Survey of Canada, National Museum of Man, Ottawa, while Brian Gordon, Arctic Archaeologist, Archaeological Survey of Canada, examined the native artifacts and made suggestions concerning their probable usage and temporal placement. Rodolphe D. Fecteau of the Museum of Indian Archaeology, University of Western Ontario, London, and Jock H. McAndrews of the Geobotany Laboratory, Royal Ontario Museum, Toronto, examined and identified the recovered seeds. Information pertaining to finger ring sizes and nomenclature was kindly provided by George R. Frankovich, Executive Director, Manufacturing Jewelers and Silversmiths of America Inc., Providence, R.I.

Grateful acknowledgement is made to the Hudson's Bay Company for permission to consult and quote from its archives. Mrs. Shirlee Anne Smith, Hudson's Bay Company archivist, was most helpful while I was conducting research at the company's archives in the Provincial Archives of Manitoba, Winnipeg.

INTRODUCTION

Historical Sketch

The reputation of the Athabasca country as a source of fine furs was established early in the 18th century when pelts from this region began to trickle into the Hudson's Bay Company posts at York Factory and Churchill via Indian middlemen (Smythe 1968: 242). Yet it was not until 1778 that a white trader entered the region to tap its riches at the source. In the spring of that year the notorious Peter Pond formed a "concern" with six other "free traders" at Sturgeon Fort on the North Saskatchewan and, with five canoes, 20 men and 100 pieces of leftover trade goods, set out to penetrate into the "Athapuscow country" as far as he could go (Parker 1971: 16; Tyrrell 1934: 56). With his early start he was able to reach the headwaters of the Churchill River, cross the Methy Portage separating the waters of the Mackenzie basin from those draining into Hudson Bay and descend the Athabasca to within 30 or 40 miles of its mouth where he established a small house that came to be known as Pond's Fort. Operating as an independent trader for the first few years, Pond became a partner in the newly formed North West Company in 1785 which thereby gained the only establishment in Athabasca (Chalmers 1974: 51).

During the ensuing decade and a half, the Nor'Westers prospered in the absence of competition and expanded throughout Athabasca and beyond, establishing posts westward along the Peace River and northward along the Mackenzie. At the hub of this vast network stood Fort Chipewyan constructed by Roderick Mackenzie in 1788 to supersede Pond's Fort. Initially located on a small peninsula on the south shore of Lake Athabasca some six miles to the east of the Athabasca River delta, the establishment was relocated on the northwest shore in the immediate vicinity of the present-day settlement of Fort Chipewyan, Alberta, at some time between 1796 and 1800 (Blanchet 1946: 34; Parker 1967: 40; Smythe 1968: 244). At both sites Fort Chipewyan served as company headquarters and the chief trading establishment in Athabasca, as well as a redistribution centre for furs coming from and supplies going to the other posts in the district.

The halycon days of the Northmen in Athabasca came to an end in 1799 when several disaffected partners seceded from the "Old Company" and formed what is variously called the New North West Company, XY Company, Little Company, and Sir Alexander Mackenzie and Company. Moving swiftly, the "New Company" entered Athabasca the following year and erected a trading house on Little Island opposite Fort Chipewyan, thereby instigating four years of turbulent competition for the Athabasca trade (Parker 1967: 41). The rivalry ceased in 1804 with the absorption of the new concern by the old North West Company which then became stronger than ever.

At about the same time the XY Company entered the region, the Hudson's Bay Company Committee in London informed John Ballenden, the newly appointed chief factor of York Factory, that he was to increase the general trade and to rival the North West Company in Athabasca (Rich 1960, 2: 219). So it was that in the summer of 1802, Peter Fidler, Master, Trader and official Surveyor to the Company, was ordered to head an expedition to the northward. In the service of the Honourable Company since 1788, the 32-year-old Fidler was a sound choice for the task, having assisted Philip Turnor on his survey of the "Athapiscow Country" in 1790-92. Moreover, judged "a very steady sober" man by his superiors, Peter Fidler had experience in dealing with the Nor'Westers and Indians, and was conversant in the Chipewyan language (Allen 1977: 11, 18).

Consisting of Peter Fidler, his Swampy Cree wife Mary, Mr. Thomas Swain, 16 Orcadian canoemen and five canoes, the Athabasca brigade departed Cumberland House - the main English inland post and base for the Athabasca expedition - on 7 August. Preceded much of the way by hostile Northmen who attempted to thwart their efforts to procure provisions from the Indians, the party arrived at Fort Chipewyan 43 days later. After resting several days, Swain embarked for the Peace River country with nine men and three canoes to establish Mansfield House, a provision post intended to supply pemmican for the voyage out in the spring. The rest of the group commenced a search for a suitable place to erect their establishment. Although desiring a location next to the Canadian houses, a lack of suitable timber thereabouts forced the Baymen to settle on a small island about three-quarters of a mile hence which, thereafter known as English Island, was well wooded and had an excellent fishery (Hudson's Bay Company Archives, Provincial Archives of Manitoba [hereafter cited as HBCA], B.39/a/1, fol. 1, 6-7). Helving their axes, the Orkneymen set to work immediately and by mid-March 1803 had put up a four-room house, a fish shed, saw pit and flagstaff.

Life at the newly established post was harsh. Starvation was a constant threat and to avoid it the men spent most of their time fishing. When not so employed, they were usually making or mending nets, cutting firewood and "mudding" the buildings. The one specialist, the tailor, was kept busy sewing winter clothing for his comrades and the Indians, although he occasionally also made nets and dabbled in carpentry. As master of the house, Fidler conducted the trade and diligently kept the post journals and account books. In his leisure moments he made meteorological observations, studied the French language, read books on a wide range of subjects and cut and bound several volumes of periodicals and the like on a homemade press (HBCA, B.39/a/2, fol. 39). Mary doubtless performed various housekeeping chores, satisfied her husband's sundry needs and cared for their fourth child, Valery, who was born on 26 November 1802. Another child, Secussoggan, was born on 12 October 1804 (Manitoba, Provincial Archives, MG1/D3, fol. 12).

The trade at Nottingham House the first season was disappointing. Although the Indians were quite willing to deal with the English Company, the Nor'Westers used "every means both foul and fair" to keep them from doing so (HBCA, B.39/a/1, fol. 2). At first the natives were informed that the Hudson's Bay Company would not be returning the following fall, and that they were not to trade furs or provisions to the English if they were to avoid "a good drubbing." As the season progressed, the North West Company became more and more aggressive. "Bountiful presents, especially rum" were given to the Indians to debauch them, individuals known to have done business with the Hudson's Bay Company were beaten, furs due the English for credit given were "plundered," one of the Company's canoes was burned and a watch tent intended to "keep the Indians away" was pitched near the Baymens' post (HBCA, B.39/a/1, fol. 8-9, 19-23). Similar tactics were used at Mansfield House, forcing Swain and his men to return to Nottingham House on 23 January 1803 with few furs and, worse still, no pemmican (HBCA, B.39/a/1, fol. 15). Exasperating as the Northmen's tactics were, there was little that could be done in retaliation, Fidler having been instructed by the London Committee to keep on friendly terms with the competition (Rich 1960, 2: 219). Moreover, the Nor'Westers in the district outnumbered the Baymen about five to one (HBCA, B.39/a/3, fol. 16). Of some consolation in all this was the friendship of the XY Company which rendered "several useful services" to its English rivals (HBCA, B.39/a/1, fol. 21).

As a result of the North West Company's underhanded tactics, the Hudson's Bay Company's returns for 1802-1803 amounted to a paltry six bundles of furs (five from Nottingham House and one from Mansfield House) which, valued at 253 1/6 Made Beaver, did not even come close to covering the concern's expenditures which amounted to slightly over 551 Made Beaver (HBCA, B.39/a/2, fol. 59, 65-8). However, the competition also suffered, having given "incredible" amounts of credit and gifts to the Indians to win their favour in the trade. For 28 well-loaded canoes of goods brought in, the North West Company got only 182 packs of furs. This was in stark contrast to their returns of "a few years ago when they went in with 15 1/2 loaded Canoes and came out in the spring with 648 Packs of excellent furrs." The XY Company fared much worse; its seven trading houses in the Athabasca district produced only 31 packs (HBCA, B.39/a/1, fol. 24).

Fidler loaded the furs into three canoes and, accompanied by his wife and child, and nine men, proceeded to Cumberland House to pass the summer. Of the eight men who were left behind, three remained at the post to protect it, while Thomas Swain and the other four returned to the Peace River country to reestablish Mansfield House. Unfortunately, the competition was even stiffer than before and on 4 July the house was abandoned once and for all. After returning to Nottingham House, Swain supervised the construction of a small storehouse in anticipation of the goods to be brought in from Cumberland House. He also hunted frequently to supplement the mens' meagre fish diet (HBCA, B.39/a/1, fol. 25; B.41/a/2).

Peter Fidler apparently returned to Nottingham House on 12 September with his entire family and as many men and canoes as he had left with in the spring (HBCA, B.39/a/3, fol. 1; MacGregor 1966: 153). No more men could be engaged because of the difficult route, the isolated nature of the post and the almost contant fish diet (HBCA, B.39/a/3, fol. 1). Four days later, Mr. Swain headed up the Slave River with eight men and two canoes where on 22 September he established Chiswick House on an island about 25 miles from Slave Lake (HBCA, B.41/a/2; Innis 1970: 152).

The second season saw the North West Company step up its policy of aggression against the two opposing companies. In fact, things became so heated between the two North West Companies that at one point they were "ready to attack each other over the Indian trade in spite of the fact that hardly any furrs are to be had" (HBCA, B.39/a/3, fol. 15-6). The Northmen's tactics against the Hudson's Bay Company included the placement of a watch tent near Nottingham House on 26 September. The tent was replaced by a small building on 20 October. In retaliation, the Baymen built a similar house near Fort Chipewyan. However, it was not strategically situated so early in the new year the Hudson's Bay Company and the XY Company collaborated to erect a tent in a more suitable location (HBCA, B.39/a/3, fol. 6a, 8, 11).

The retaliatory measures did little to improve the Honourable Company's trade situation. Although not mentioned in the post journals, the indication is that the fur returns for 1803-1804 were less than those for the previous season. On the other hand, the returns for the two Canadian concerns were slightly improved. With 195 men in the district, the North West Company got 315 packs of furs for 25 canoes of trade goods. The XY Company, with 83 men, got 84 packs for ten canoe loads of goods (HBCA, B.39/a/3, fol. 21).

The Athabasca brigade set out for Oxford House in the "Muskrat Country" via Cumberland House on 20 May, leaving three men at Chiswick House and five at Nottingham House. However, it turned out that there was nothing to eat at Oxford House so the brigade spent the summer at Cumberland House. When it returned to Athabasca on 16 September, the brigade had with it only a few trade goods, there being the distinct possibility that the Hudson's Bay Company might abandon its Athabasca posts in the spring. Yet the news that the Chipewyan Indians had killed six Old Company men and destroyed their settlement at the east end of the lake the previous summer in retaliation for "their very harsh and Barbarous" treatment gave Fidler hope that the Hudson's Bay Company's trade in Athabasca might yet become profitable (HBCA, B.39/a/3, fol. 16, 21; B.39/a/4, fol. 1-2).

But this was not to be. Afraid of reprisals, the Chipewyans avoided the Athabasca posts with many making the backbreaking journey to Churchill to conduct their business. Notwithstanding, on 1 March 1805 Fidler received a letter from Ile-à-la-Crosse ordering him to remain in Athabasca the following season. Fidler responded by promising "to do everything to carry business on in these parts with more effect." However, any hope of successfully competing with the Canadians was dashed on 6 May when Fidler received news of the merger of the two North West companies. As he wrote that day: "[Our] chances for getting skins even worse now as the rivals have threatened that with the merger they will drive the Honourable Co. from this Quarter (HBCA, B.39/a/4, fol. 13-18).

To hasten the Hudson's Bay Company's egress from Athabasca, the strengthened North West Company performed various malicious deeds. On 12 May the Baymen's watch house at Fort Chipewyan was burned to the ground, and all the lumber that had been collected "for rafting to build a new House" was set afire several days later. As well, nets were tampered with and fish were pilfered therefrom. All this had an unsettling effect on the men who were "so much intimidated at the Rascally behaviour of the Canadians" by the end of the season that it was extremely difficult to get anyone to remain in Athabasca that summer (HBCA, B.39/a/4, fol. 18-20).

Shortly before the end of the season, Thomas Swain returned from his post on one of the Moose Islands in Slave Lake where he had wintered with four men. In the end he and three others agreed to stay at Nottingham House for the summer, while another four men apparently remained at Slave Lake. The rest of the crew, along with Peter Fidler and his family, departed for Cumberland House in two canoes on 24 May. With them went the fur returns for 1804-1805 which amounted to a profitless 164 Made Beaver (HBCA, B.39/a/4, fol. 5, 11, 13-14, 19-20).

When Fidler returned to English Island with his usual contingent of eight men and two canoes on 11 September 1805, he unwittingly entered what was to be the nadir of his career. From the start, the Canadians did everything possible to make life miserable for their rivals. They pitched a watch tent very near the main house, burned a canoe, ripped up the garden, nearly set fire to the post and interfered with the fall duck shoot (HBCA, B.39/a/5a, fol. 1-3).

Greatly outnumbered, with starvation imminent and no prospects of trade, Fidler capitulated to the North West Company. An agreement was made wherein Fidler promised to desist from trade for the duration of the season and to withdraw all Hudson's Bay Company personnel from Athabasca for the following two years on condition that the North West Company pay "all our Indian Credits at this place & the Slave Lake ammounting to 500 MBr." The payment, to consist of 300 large beaver skins and 200 Made Beaver in other furs, was to be made five days before spring embarcation. A large canoe and six bags of pemmican (all to be returned at Ile-à-la-

Crosse or Cumberland House the following summer) were to be delivered at the same time. In addition, the Hudson's Bay Company was to have the loan of a small canoe for the rest of the season, and ten moose were to be provided during the course of the winter (HBCA, B.39/a/5a, fol. 3).

There followed a peaceful interlude during which Thomas Swain and four Orkneymen embarked for Slave Lake. The tranquility ended abruptly on 25 September when five North West Company men took down a watch house erected near Nottingham House the previous summer and put it up within 4 yd of Fidler's room. Incensed at this, Fidler complained to James Mackenzie, master of Fort Chipewyan, who then ordered that the structure be moved about 80 yd away. However, on 21 January 1806, it was moved back to its previous location where it remained for the rest of the season. To add insult to injury, another watch house was put up opposite Nottingham House a few days later (HBCA, B.39/a/5a, fol. 4, 5, 11).

As the days wore on, the Northmen became increasingly aggressive. Particularly so was one Samuel Black, a burly Highlander who seemed to take great pleasure in abusing Fidler and his crew. On several occasions, the young Scot forced his way into Nottingham House and, rummaging about, acted in "a most insulting manner." In mid-February a dog was stolen and eaten by the Canadians, apparently more out of spite than hunger. At about this same time Black and his cohorts took to shouting, firing shots and beating on the house at night with axes and billets of wood. These nerve-wracking shenanigans continued well into May by which time there was not a single man left at the post who would return to Athabasca in the fall even if his "wages was doubled" (HBCA, B.39/a/5a, fol. 11-17).

The final affront came on 5 June when James Mackenzie refused to fulfill the major obligation of the agreement made the previous fall, arguing that the document had not been signed into effect. Possibly anticipating such an action, Fidler had carried on a clandestine trade with the Indians at every opportunity, thereby accumulating 100 Made Beaver in furs. Mackenzie did, however, comply with the other terms of the agreement (HBCA, B.39/a/5a, fol. 18).

On 9 June, 1806, Fidler and his companions turned their backs on Nottingham House for the last time. After four disappointing years, the Athabasca adventure was over.

Geographical Setting

English Island is situated at the extreme west end of Lake Athabasca in the northeastern corner of Alberta approximately 1.6 miles to the west-southwest of the settlement of Fort Chipewyan (Fig. 1). The island, with an area of about 24 acres, is at the confluence of the waters of the Rivière des Rochers and the Chenal des Quatre Fourches which are tributaries of the Slave and Peace rivers, respectively (Fig. 2). The mouth of the Embarras River and the Athabasca River delta are approximately 5.6 miles to the southeast. The lake is quite shallow near the delta, seldom exceeding a depth of ten feet, while depths in excess of 370 ft have been recorded in the eastern half of the lake near Uranium City (Canadian Hydrographic Service 1962). The portion of the lake to the west of the island has silted in and is occupied by a vast marsh.

The Nottingham House site is located at the northeastern or leeward edge of the island at 58°41'57" north latitude and 111°11'51" west longitude. It is on the northwestern side of a shallow cove about 130 ft deep and 150 ft across at the mouth (Fig. 4). A soil beach extends along the back and one side of the inlet and would have been ideal for beaching canoes. The rest of the island's shoreline is rocky and often untraversable.

The site covers an area at least 165 ft long north by south and up to 58 ft wide east by west. The terrain involved is relatively flat but not level, ranging from 693 to 700 ft ASL with a mean of approximately 698 ft (Fig. 4). This is about 7 - 14 ft (12 ft mean) above the 1972 level of the lake (686 ft ASL). The rest of the island has a rolling topography that achieves a maximum height of about 745 ft ASL in the southern quadrant. A secondary prominence rising to a height of approximately 736 ft occupies the western quadrant.

The island is within the Upper Mackenzie Section of the Boreal Forest Region which constitutes the major portion of the forested area of Canada (Rowe 1972: 6, 45). The section is somewhat V-shaped with the arms stretching upstream from the juncture of the Liard and Mackenzie rivers to the Fort Nelson River and the lower Peace River, respectively, and with the elongated apex extending downstream to Norman Wells, N.W.T. (Rowe 1972: 45). The arborous growth on English Island is of medium density and typical of that encountered on the alluvial deposits that border the rivers in the section. White spruce (*Picea glauca*), balsam poplar (*Populus balsamifera*) and white birch (*Betula papyrifera*) form the dominant growth in the lower areas with trembling aspen (*Populus tremuloides*) replacing the poplar on higher ground. Secondary species include the common juniper (*Juniperus communis*), Saskatoonberry (*Amelanchier alnifolia*), alder (*Alnus* sp.) and scrub willow (*Salix* sp.). Wild strawberries (*Fragaria* sp.) and raspberries (*Rubus* sp.) occur in scattered patches, and there are several species of grasses and flowers, including wild roses (*Rosa* sp.).

Located at the western edge of the Canadian Shield, the island consists of an undulating protuberance of Precambrian granitic gneiss carved by glacial action some 7000 years ago (Chalmers 1971: 7). A thin layer of earth mantles the bedrock throughout most of the interior of the island but not along the shoreline where steep scarps and erosion have prevented its accumulation (Fig. 5). The soil is of the Gray Wooded group and has developed on lacustrine material with normal profile development (Lindsay et al. 1962: 11, 64). A typical profile exposed by Lindsay et al. (1962: 28) in the vicinity of Fort Chipewyan is as follows:

Horizon	Thickness	Description
L-H	1 in.	deciduous leaf litter
Ae	3 in.	platy, friable, gray (10YR 6/1) sandy loam
Bt	15 in.	medium blocky, firm, pinkish gray (7.5YR 6/2) sandy clay
C	19 in. b.s.	lacustrine, pinkish gray (7.5YR 6/2) silty clay

The climate in the Athabasca region is classified as dry subhumid (Rowe 1972: 155). Based on meteorological observations made at the Fort Chipewyan settlement over an 18-year period, the average annual rainfall is 7.6 in. while the average annual snowfall is 44.0 in. Rainfall is highest in July (1.84 in. average) and the most snow falls in November (9.1 in. average) (Canada 1954: 20-21).

The annual mean temperature in the area is -6.6°C. January is the coldest month with an average daily mean temperature of -23.8°C. July is the warmest with an average daily mean temperature of 17.2°C. From November through April, the average daily mean temperature is below 0°C (Canada 1954: 15). The mean annual length of the growing season is 140-160 days (Rowe 1972: 156).

The prevailing wind in the vicinity of Nottingham House is from the southwest and is frequently quite strong. Consequently, the lake is often choppy and unnavigable by small craft, swells of over five feet not being uncommon. The area is also subject to sudden storms that can come up in a matter of minutes and have sent many a canoe and its passengers to the bottom over the past few hundred years.

Archaeological Techniques

Before excavation, the site was marked by four depressions and seven rock piles representative of at least four structures. Although several recent campfire rings and hide tanning holes were noted at the northern end of the site, none of the archaeological features had been disturbed. After the dense overgrowth that covered the site area had been cleared, the structures that appeared to be invovled were divided into horizontal units (Fig. 6) to expedite the recording of structural data and the assignment of artifacts to specific portions of the site for interpretative purposes. Each unit was excavated stratigraphically to facilitate the vertical segregation of the cultural remains. The work was accomplished with hand tools such as trowels, grapefruit knives, coal shovels, and brushes so that the recovery of artifacts, faunal remains and structural components would be as complete as possible. When small objects like beads and shot were encountered, the soil in their immediate vicinity was screened through both 1/16-in. and 1/4-in. hardware cloth to ensure the recovery of as many small items as possible. Screening of the fill at other times was not performed because the clayey soil tended to clog the screens, making them practically useless.

All features and stratigraphic layers were recorded as they were uncovered to ensure that no information would be lost. All measurements were recorded in feet and tenths of feet to facilitate the comparison of the uncovered features to those described in historical documents and archaeological reports. After each feature was recorded, it was backfilled to as near the original contours as possible.

Stratigraphy

Three major stratigraphic layers and numerous localized zones were encountered at the Nottingham House site. The major layers were present in all of the excavation units, while the localized zones were spatially restricted. The overburden was relatively thin for the most part, very little soil having accumulated on the site since it fell into ruin; although the material was 2.4 - 4.8 ft deep in the various pits, it was only 0.15 - 1.6 ft (0.8 ft average) thick elsewhere. Soil colours are designated using the Munsell notation system (Munsell Color Company 1971).

Layer 1. Decaying vegetal material mixed with varying amounts of humus-stained sand made up the uppermost layer in the entire site area. The stratum was 0.05 - 0.9 ft thick with an average of 0.4 ft. It contained both modern and period artifacts and was deposited after the fort had been abandoned.

Layer 2. Directly beneath layer 1 in all but portions of six units (1N, 2A, 2B, 2D, 3F and 5B) was a deposit of light reddish brown (5YR 6/4) to dark brown (10YR 3/3) sandy to silty clay containing burned, yellowish red (5YR 5/6) to dark reddish brown (5YR 3/3), silty to sandy clay; light brown (7.5YR 6/4) to brown (10YR 5/3) sand and gravel; dark brown (7.5YR 3/2) loam; gray (5YR 5/1) to light brownish gray (10YR 6/2) ash; charcoal; angular and rounded stones; wooden building components; chinking fragments; burned bones; and period artifacts. The deposit was 0.04 - 2.3 ft (0.6 ft average) thick and consists of occupational debris and collapsed structural components.

Layer 3. The subsoil in the area is composed of light gray (5YR 7/1) to dark yellowish brown (10YR 3/4) silty to sandy clay grading into light gray (7.5YR 7/0) to brown (7.5YR 5/4) sand and gravel. It appears 0.15 - 4.8 ft below the surface, with the average depth 1.2 ft.

The localized zones consist of hearth, pit and posthole fill and are described in the Description of Features portion of the report.

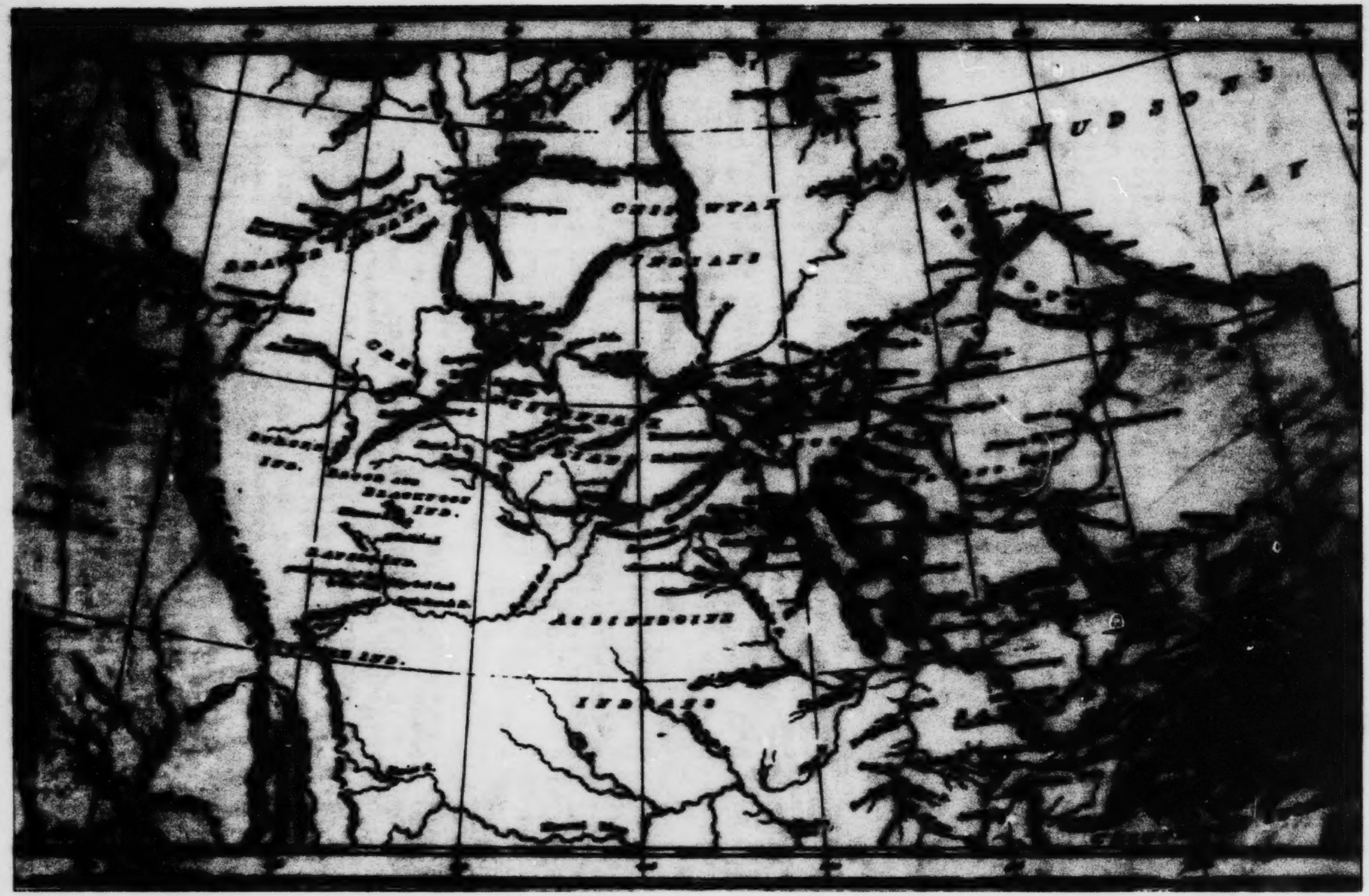
HUDSON'S BAY
INDIANS
ASSINIBOINE
INDIANS

Figure 1. Section of an anonymous 1820 "Map of the Interior of North America" showing the general location of Nottingham House (arrow) and other related fur trade sites. (Daniel Williams Harmon, A Journal of Voyages and Travels in the Interior of North America [New York, A.S. Barnes & Co., 1903], end map: copy on file National Map Collection, Public Archives of Canada, H12/1100-1820.)

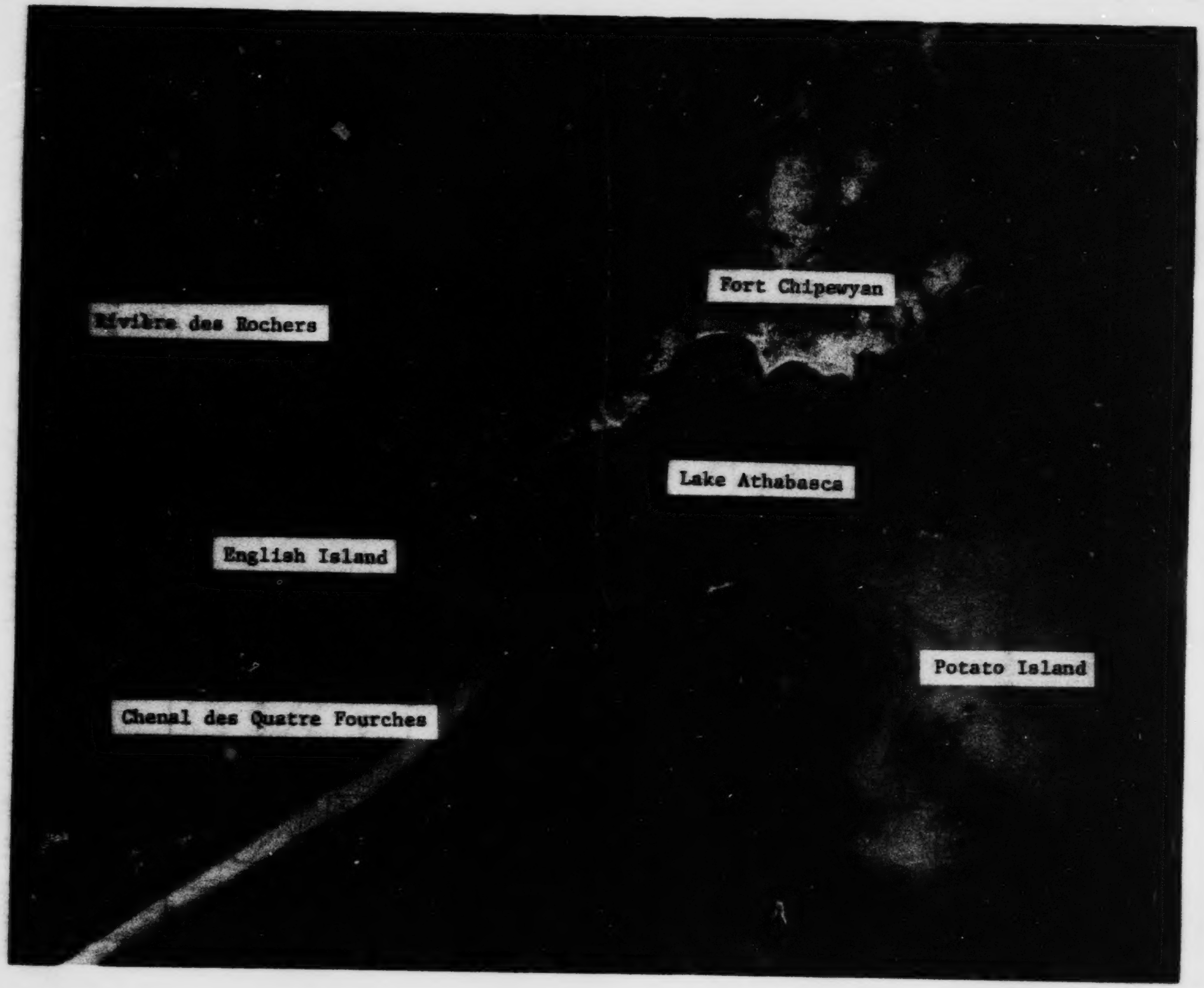
Fort Chipewyan
Rivière des Rochers
Lake Athabasca
English Island
Potato Island
Chenal des Quatre Fourches

Figure 2. Aerial photo of the west end of Lake Athabasca showing the location of English Island, the site of Nottingham House (arrow). (Alberta Energy and Natural Resources, AS60-5812-145.)

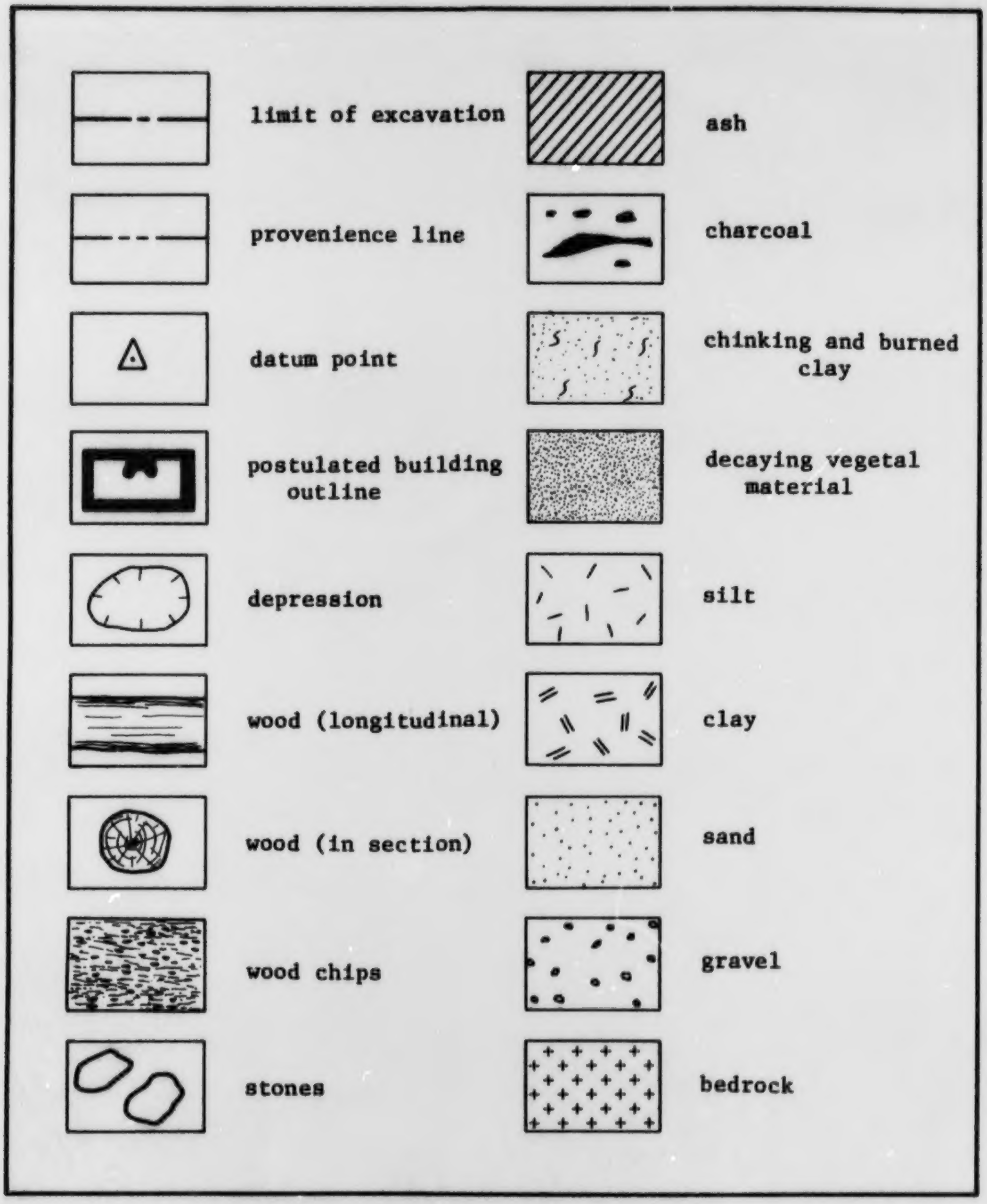
limit of excavation
ash
provenience line
charcoal
datum point
chinking and burned clay
postulated building outline
decaying vegetal material
depression
silt
wood (longitudinal)
clay
wood (in section)
sand
wood chips
gravel
stones
bedrock

Figure 3. Symbols used in archaeological drawings. (Drawing by S. Epps.)

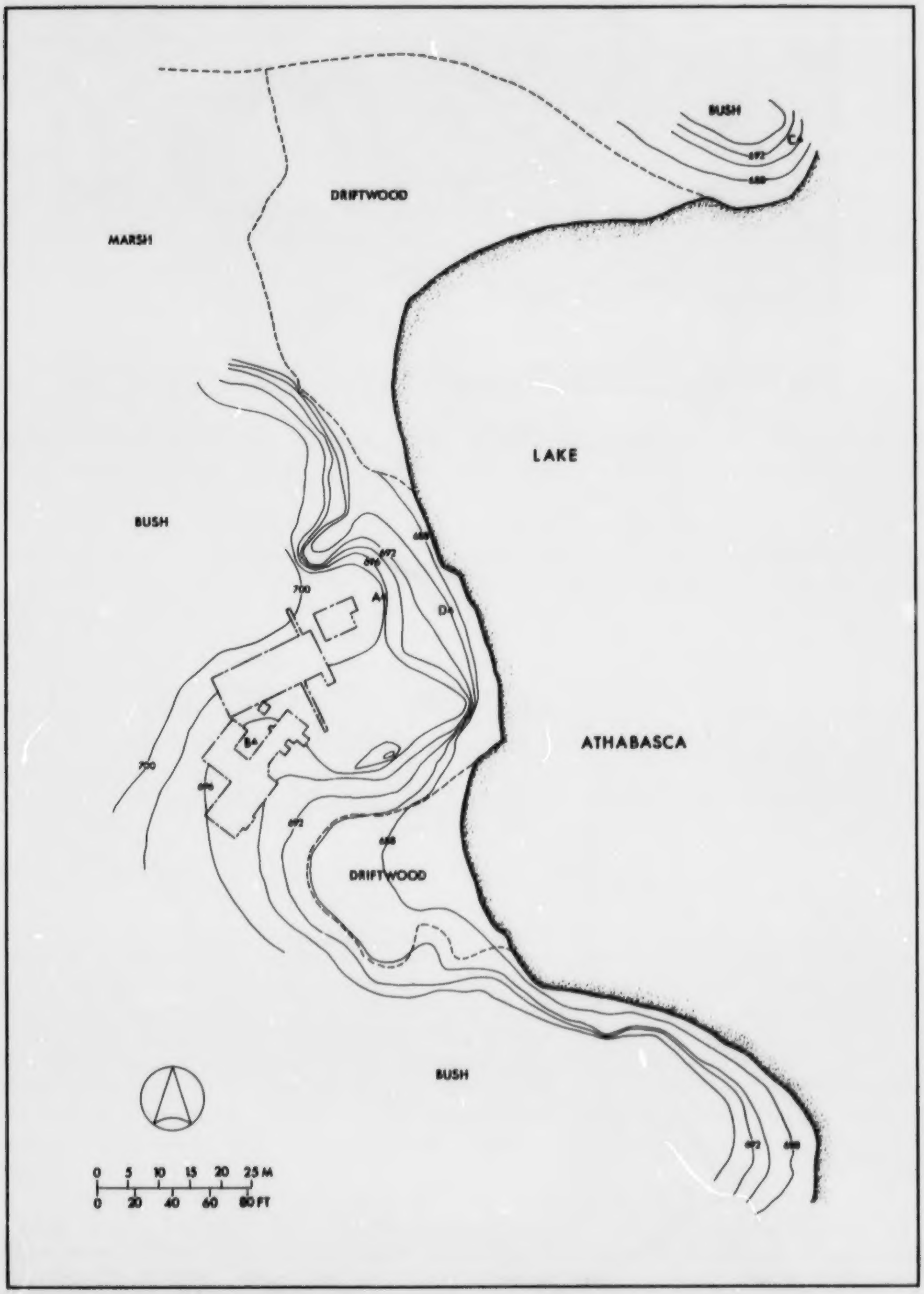
BUSH
C
692
688
DRIFTWOOD
MARSH
LAKE
BUSH
688
692
696
700
A
D
ATHABASCA
B
700
696
692
688
DRIFTWOOD
BUSH
692
688
0 5 10 15 20 25 M
0 20 40 60 80 FT

Figure 4. Contour map of the Nottingham House site and vicinity showing the excavated area. (Drawing by S. Epps.)

Figure 5. The shoreline adjacent to the site of Nottingham House, looking southeast. The shallow cove is in the left centre.

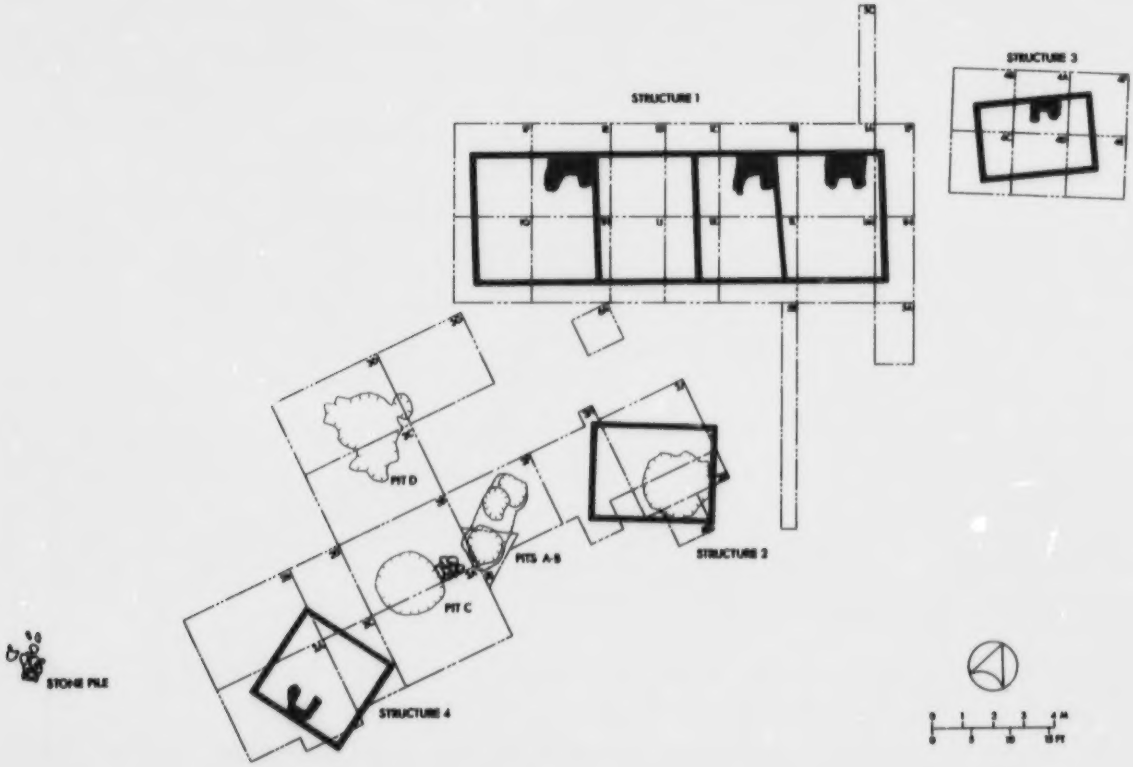
STRUCTURE 1
STRUCTURE 3
PIT D
PITS A-B
STRUCTURE 2
PIT C
STONE PILE
STRUCTURE 4
0 1 2 3 4 M
0 5 10 15 FT

Figure 6. Nottingham House site plan. (Drawing by S. Epps.)

DESCRIPTION OF FEATURES

During the course of the excavations slightly over 3519 sq ft of the site area were cleared, revealing the poorly preserved remains of four wooden structures, as well as four large pits, a stone pile and a single human burial. All of these features are attributable to the 1802-1806 period except for the burial which is intrusive.

Structure 1 - Main House

The wooden foundation of this building was located at the base of a steep rise at the northwestern edge of the site at an elevation of about 698 ft ASL or approximately 12 ft above the 1972 level of the lake (Fig. 4). While the northwestern half of the foundation had been fairly well preserved by a mantle of collapsed chimney clay and roofing material, the southeastern portion had all but disappeared (Fig. 7). Nevertheless, enough components remained to indicate the floor plan of the structure (Fig. 8), as well as some of the construction techniques.

The house, estimated to have had exterior dimensions of 53 ft (NE-SW) by 17 ft (NW-SE), was apparently built entirely of spruce (C. Costain 1977: pers. com.) with a combination of post-in-ground and post-on-sill construction techniques. The sills or basal elements of the exterior walls were composed of flattened logs 0.5 - 0.85 ft (0.6 ft average) wide and 0.4 - 0.6 ft (0.5 ft average) thick. These rested on the levelled surface of the clay subsoil. Several large rocks protruded from the ground at the northeastern end of the northwest wall, including one that intruded into the line of the wall. Instead of removing the stone, a corresponding notch was cut into the underside of the appropriate beam so that it would fit over the rock. After the sills had been laid, sandy clay was banked against their exterior faces to insulate and stabilize them.

While a single beam made up either end sill, the lateral sills were formed by three separate elements that were (in sequence from the northeast to the southwest) 18.5 ft, 16.2 ft and 16.6 ft long in the northwest wall, and 24.0 ft, 16.6 ft and 10.7 ft long in the southeast wall. The components met at the corners in lap joints. Although the type of lap could not be determined because of the extremely fragmentary nature of the single extant corner, it was probably either simple (also called half-lap and half notched), or keyed, as illustrated in Barbeau (1945: 10).

Figure 7. The main house (structure 1), looking northeast.

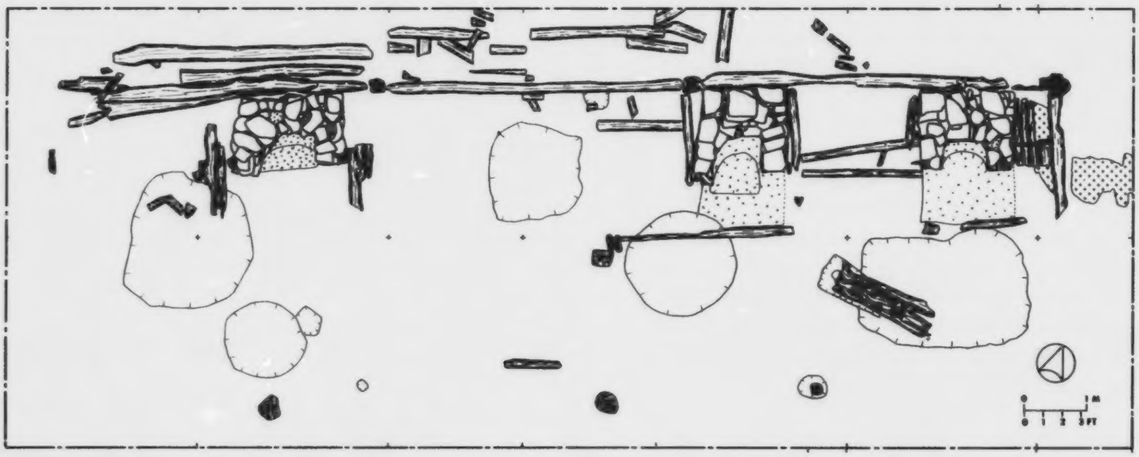

Figure 8. Ground plan of the main house. (Drawing by S. Epps.)

The remaining beam termini were tenoned and anchored in grooved uprights set in the ground. The tenons had squared ends and parallel sides at an obtuse angle to the adjacent end facets of each beam. The one intact example was 0.18 ft long and wide, and at an angle of 130 degrees to the end facets. Uneven cut marks on its sides revealed that it had been fashioned with an axe rather than a saw.

The grooved uprights - two in each side wall - were embedded in the subsoil to a depth of 1.75 ft. Their round-sectioned subterranean segments measured 0.85 - 1.15 ft across and had flat butts braced with field stones. Their squared upper portions measured 0.7 - 0.75 ft by 0.75 - 0.9 ft, and protruded from the ground for a distance of 0.4 - 0.55 ft. The vertical grooves in the timbers were 0.17 - 0.3 ft (0.23 ft average) wide and 0.15 - 0.25 ft (0.19 ft average) deep.

The building's superstructure was represented by numerous remnants of the collapsed walls and roof, as well as two in situ remnants of the northwest wall's first course logs. The wall beams, which paralleled the side walls, were found inside and to the northwest of the structure, while the roofing components were concentrated inside it. This implies that the house collapsed to the northwest with the roof falling almost straight down.

The corners of the superstructure were not formed in the same manner as those of the foundation, the indication being that they were of post-on-sill construction. The evidence for this consists of an extremely fragmentary upright found in situ on the west foundation corner, as well as the fact that the coetaneous storehouse at the post is recorded as having corners of this type (HBCA, B.41/a/2, fol. 11). Although there is no direct evidence for them, comparative structural data suggest that an upright was probably also situated in the centre of either end wall to support the ridge pole. Thus, it would seem that ten sets of horizontals and ten uprights (four post-in-ground and six post-on-sill) made up the exterior walls. The distances between the uprights in the side walls were (in sequence from the northeast to the southwest) 17.7 ft, 16.2 ft and 15.8 ft in the northwest wall, and 23.2 ft, 16.6 ft and 9.9 ft in the southeast wall. The end wall uprights are estimated to have been about 7.3 ft apart. The horizontal timbers, which were either flattened or partially squared, had widths and thicknesses that equated with those of the sill components. Fidler's specifications for a near identical house that was apparently scheduled for construction in 1805 reveal that the walls of the main house probably stood about 8 ft high (HBCA, B.39/a/3, fol. 20; B.39/a/5b, fol. 1).

The walls were chinked with sandy to silty clay tempered with varying amounts of grass. The exterior faces of many of the chinking fragments that were examined exhibited from one to three thin (0.2 - 1.6 mm; 0.6 mm average) layers of clay that doubtless represent the "plaster" that was applied to the interior faces of the walls on several different occasions (HBCA, B.39/a/1, fol. 14, 21; B.39/a/3, fol. 10, 19; B.39/a/4, fol. 6; B.39/a/5a, fol. 6; B.41/a/2, fol. 12). Distinct brush marks on the surfaces of the plaster layers revealed how the mud had been applied.

The roof of the building was composed of "roofing sticks" which extended from the ridge pole to the eaves. The "sticks," consisting of unaltered logs about 0.24 - 0.3 ft (0.27 ft average) in diameter, were covered with a layer of sandy to silty clay mixed with grass which, in turn, was overlain by sheets of bark (probably spruce) thereby rendering the whole tolerably weatherproof (HBCA, B.39/a/5a, fol. 4). The bark was most likely held in place by a series of poles extending from one end of the roof to the other as noted on several 19th-century post-on-sill structures in northern Athabasca and the Mackenzie region. A plan (Fig. 9) of the house that Fidler was preparing to build in 1805 intimates that the roof was gabled and had a rise of about 8.6 ft in a run of 12 ft (HBCA, B.39/a/5b, fol. 1).

The 51.8-ft by 15.9-ft interior of the main house was divided into four rooms of almost equal size by three partitions, each of which was apparently composed of two sets of horizontal beams tongued into three grooved uprights fixed in the ground. The terminal uprights were, with one exception, situated against the exterior walls, while the medial ones were in the approximate centre of the building. The exceptive upright (the one at the southeast end of the central partition) was apparently formed by the aligning vertical component in the adjacent exterior wall. The posts had both round and square-sectioned bases, and squared upper sections which measured 0.5 ft by 0.5 ft to 0.8 ft by 1.0 ft. One of the timbers exhibited a groove remnant about 0.3 ft across and 0.17 ft deep. The partitions' horizontal filler elements consisted of either flattened or partially squared logs 5.1 - 9.8 ft long, 0.5 - 0.55 ft wide, and up to 0.2 ft thick. The only extant tongue was 0.22 ft wide, and its parallel sides were at an angle of about 90 degrees to the adjacent end facets of the beam. The partitions were chinked and plastered with the same material as the exterior walls.

The room in the northeastern end of the building, hereafter referred to as Room A, measured 13.1 ft (NE-SW) by 15.9 ft (NW-SE). It contained the base of a masonry fireplace, remnants of a wooden floor, a large cellar and the intrusive human burial.

The fireplace (Fig. 10) was situated against the northwest wall, 1.8 ft from the northeast wall and 6.5 ft from the southwest wall. It was constructed of undressed slabs of gneiss with several cobbles of hornblende granite and quartzite. These components were cemented together with reddish brown (5YR 5/3) sandy clay tempered with grass which also covered all the exposed surfaces.

The fireplace measured 4.2 ft (NW-SE) by 4.8 ft (NE-SW) and 4.3 ft high. Its 1.5-ft deep firebox, which faces southeast, was 1.8 ft wide at the back and 2.4 ft wide at the mouth. Consequently, the cheeks were 1.6 - 1.7 ft thick at their proximal ends but only 1.1 - 1.3 ft thick at their distal ends. A squared vertical post with its base anchored

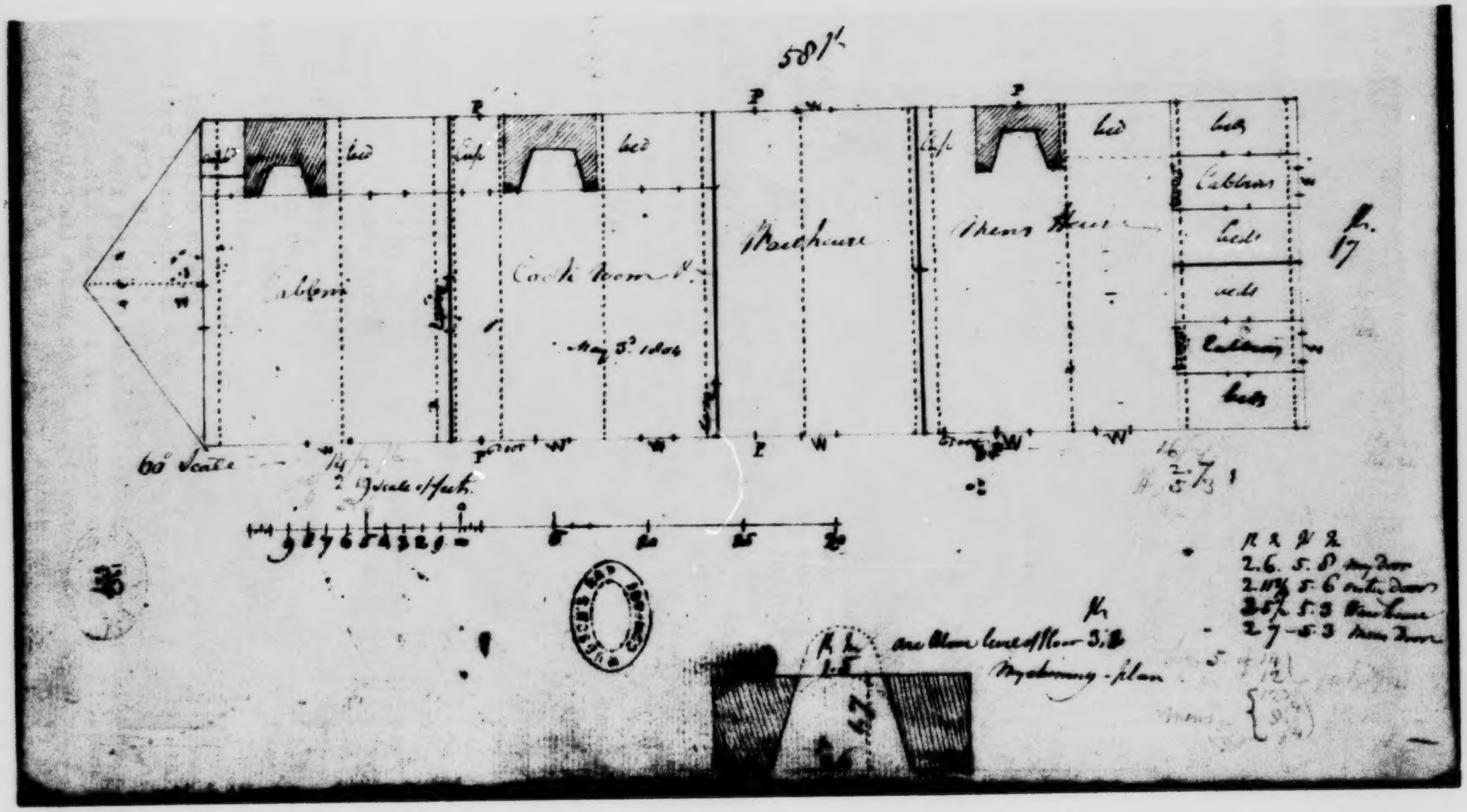
58 ft
Cabbin
bed
Cook Room &c
May 3d 1804
Mens House
Cabbins
60 Scale
Scale of feet
Chimney plan

Figure 9. Plan for a house prepared by Peter Fidler, 3 May 1804. The floorplan of this structure is essentially a mirror image of that of the main house at Nottingham House. (Manitoba Provincial Archives. Hudson's Bay Company Archives, B.39/a/5b, fol. 1.)

in the ground was set in the exterior corner of either cheek, probably to keep them from splaying outward. The uprights, standing up to 1.8 ft high, measured 0.35 by 0.36 ft and 0.35 by 0.4 ft, respectively.

The firebox was faced with a clay and grass mixture which covered the back to a depth of 0.6 ft, curved across the corners and tapered out at the mouth. At the base of the firebox was a 0.9-ft deep clay hearth which contained a very thin layer of grayish (5YR 5/1) ash covered with burned clay and charcoal. This material also spilled out onto a 0.4-ft thick, puddled clay apron that fronted the fireplace and extended into the room for a distance of about 3.0 ft.

The floor of the room was represented by a small, relatively intact section in the north corner, and three possible joists. The relatively intact flooring rested on a flat bedrock outcrop in the area between the fireplace and the northeast wall (Fig. 11). It was composed of four boards oriented northwest-southeast which were about 3.5 ft long, 0.33 - 0.62 ft wide, and 0.07 ft thick. A 2.0-ft long, 0.12-ft wide and 0.09-ft thick slat was nailed across the boards 1.1 ft from their southeastern ends, apparently to hold them in place.

Of the joists, two are relatively intact while the third is fragmentary. The former were in the west corner of the room (Fig. 12) and extended from the fireplace complex to the southwest wall. They were 6.0 ft long, 0.4 - 0.46 ft wide, and up to 0.03 ft thick. One of them paralleled the northwest wall at a distance of about 4.3 ft. The other was diagonal to the wall, and situated 3.5 ft from it at the southwest end and 2.5 ft from it at the northeast end. A headless nail protruded from the upper centre of the latter component 1.9 ft from the fireplace. The remaining joist ran along the southeastern edge of the fireplace apron (Fig. 10) and probably once extended from the northeast wall to the soutwest wall. Its fragmented remnant was 5.5 ft long, 0.47 ft wide and approximately 0.1 ft thick.

Located 3.0 ft from the fireplace apron, the cellar occupied the southeastern half of Room A (Fig. 13). It had a rectanguloid outline (fairly straight sides meeting in rounded corners) and was 9.0 ft long (NE-SW), 5.6 - 6.0 ft wide (NW-SE) at the top and 2.1 ft deep. Its practically vertical sides and relatively flat bottom met in a curve. None of its surfaces appeared to have been either lined or braced. The feature was filled with collapsed roof, wall and chimney components overlying a stratum of reddish brown (5YR 5/3) clay containing ash, burned clay, charcoal, fish remains and artifacts.

The human burial was in a rectangular grave oriented east-west that cut through the floor and superimposed building components and intruded partially into the fill in the southwestern end of the cellar and partially into the undisturbed subsoil to the southwest of it (Fig. 13). The grave was 6.3 ft long (east-west), 1.9 ft wide (north-south) and 1.6 - 2.0 ft deep. Its sides were flat and almost

Figure 10. The northwestern half of Room A in the main house, looking northwest. The northeastern portion of the clay fireplace apron has been removed.

Figure 11. The flooring in the northern corner of Room A, looking southeast.

Figure 12. The joists in the western corner of Room A, looking northwest. The fireplace on the left is in the northern corner of Room B.

Figure 13. The cellar in Room A with its intrusive human burial, looking west.

vertical; the bottom was slightly concave and sloped down slightly toward the east. While the west end of the bottom was smooth, the rest of it exhibited distinct shovel marks 0.45 - 0.6 ft long. These formed several rows oriented north-south a uniform 0.45 ft apart. Each row was usually composed of three aligned marks whose shape suggested that they had been formed by a flat-edged shovel.

The burial, that of a 25 - 28-year-old male Amerindian (J. Cybulski 1978: pers. com.; Appendix A), was in a fully extended position with the head to the west. The body was face up with the arms along the sides and the fingers over the pelvic region. The legs were straight with the knees together and the toes pointing straight out parallel to the long axis of the body. The distance from the top of the skull to the bottom of the heel bone was 5.8 ft, the probable height of the individual. No artifacts were found in association with the deceased intimating burial in a shroud or clothing without metal attachments. The corpse was covered with three charred boards (probably salvaged building components) about 5.5 ft long, 0.45 ft wide and 0.23 - 0.35 ft thick. These extended from the eye sockets to the toes (Fig. 14).

The second chamber (Room B) was directly to the southwest of the previous one and measured 9.9 ft (NE-SW) by 15.9 ft (NW-SE). Its structural features included a fireplace base, remnants of a wooden floor, a storage pit and an upright that apparently served as a ridge pole support.

Located in the north corner of the room, the fireplace base measured 4.5 (NW-SE) by 4.2 ft (NE-SW), and was 3.8 ft high (Fig. 15). Except for the lack of an upright in the east corner, it was constructed in the same manner and of the same materials as the one in Room A. The firebox, which faced southeast, was 2.0 ft deep and 2.5 - 2.9 ft broad. Its practically parallel-sided cheeks were 1.0 - 1.3 ft thick. The post that braced the southwestern cheek seemed to have been round-sectioned and about 0.35 ft in diameter. The clay facing the firebox was 1.0 ft thick at the centre of the back just above the hearth but had thinned to only 0.45 ft at a point 2.3 ft farther up. The clay making up the 1.0 ft deep hearth was 0.6 ft thick. A puddled clay apron 3.0 ft wide (NW-SE) and 0.6 ft thick fronted the fireplace. Brown (7.5YR 5/4) ash intercalated with burned clay and charcoal occupied the hearth and extended out onto the apron for a distance of about 1.4 ft (Fig 16).

The floor in Room B was extremely fragmentary, being represented by two relatively intact joists oriented northeast-southwest and two perpendicular floorboard remnants. The first joist, 1.6 ft from the northwest wall, extended from the fireplace to the southwest partition. It was 4.1 ft long, 0.55 ft wide and 0.23 ft thick. The two floorboard remnants were associated with this joist. One of them - a 4.7-ft long, 0.4-ft wide, and 0.1-ft thick specimen - extended along the southwestern side of the fireplace. The other, 1.1 by 0.4 ft by 0.05 ft, was situated 3.3 ft farther to the southwest. The second joist was about 5.2 ft to the southeast

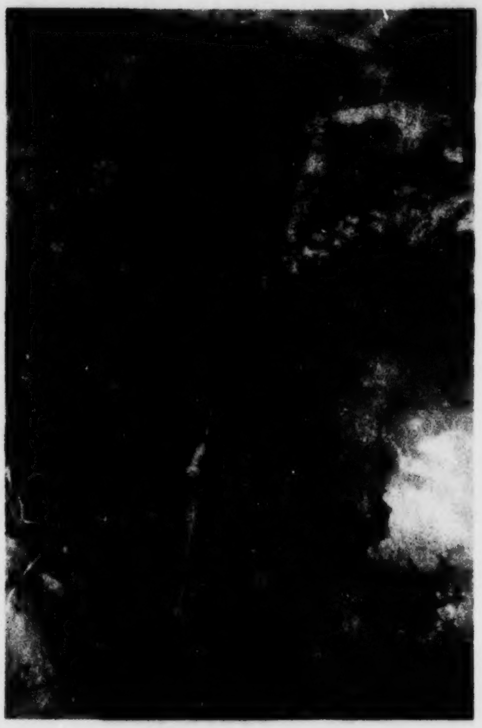

Figure 14. The burial before the removal of its board covering, looking west. The toe bones were dislocated and removed before the photograph was taken.

Figure 15. Room B in the main house, looking north-northwest. The portion of the pit situated beneath the central joist has not been excavated.

of the first, and ran along the southeastern edge of the fireplace apron and over the northwestern portion of the storage pit's orifice. The timber was 9.0 ft long, up to 0.38 ft wide and 0.1 ft thick.

The probable ridge pole support was adjacent to the north corner of the central upright in the southwest partition, 22.8 and 28.3 ft from the building's northeast and southwest walls, respectively. The squared upright measured 0.7 by 0.8 ft and had a vertical groove in both its northwest and southeast face. The function of the 0.17 - 0.25-ft wide by 0.2-ft deep grooves could not be determined.

The storage pit, located about 1.8 ft to the south of the southwestern fireplace cheek, was flask-shaped and 4.4 ft deep. Its mouth had a diameter of 5.7 - 5.8 ft, while the near cylindrical neck was 1.2 - 2.2 ft high and approximately 4.6 ft across. The sides of the pit bulged out immediately below the neck and then recurved toward the flattened bottom, forming a 2.2 - 3.2 ft high cavity with a maximum breadth of 5.4 ft. The bottom and lower sides were lined with spruce boughs. The pit was filled with a mixture of dark brown (7.5YR 3/2) sandy clay, yellowish red (5YR 4/6) burned clay and charcoal containing lenses of a grayish brown (10YR 5/2) ash and fish bones, and reddish brown (5YR 5/3) clay.

The next unit, Room C, measured 12.2 ft (NE-SW) by 15.9 ft (NW-SE). It was practically devoid of features, containing only a sub-floor storage pit and several floor components. The pit was in the northwestern half of the room (Fig. 17), about 0.5 ft from the northeast wall, 1.5 ft from the northwest wall and 6.6 ft from the southwest wall. The orifice of this 2.5-ft deep feature was roughly circular and about 4.5 ft in diameter, while the bottom was squarish and 3.0 ft across. The sides were practically vertical; the bottom was just slightly concave. The depression did not appear to have been lined.

The upper portion of the pit contained collapsed wall and roofing constituents (Fig. 18) which overlay a mottled layer of dark brown (7.5YR 3/2) silty clay, reddish brown (5YR 5/3) clay, yellowish red (5YR 4/6) burned clay and charcoal. The very bottom contained a mottled mixture of dark brown (7.5YR 3/2) and reddish brown (5YR 5/3) silty clay, charcoal, ash, fish remains and wood scraps. Numerous artifacts were also encountered in the various layers. These suggested that the pit had been used to store tools, hardware and various items related to subsistence and defence.

The flooring components consisted of a possible joist remnant and two incomplete floorboards. The former item ran northeast-southwest and was about 1.3 ft from the presumed line of the southeastern wall. It measured 2.9 ft long, 0.42 ft wide, and 0.07 ft thick. The floorboards were adjacent to the southwestern partition in the west corner of the room. Oriented northwest-southeast, they were 2.0 ft long, 0.5 - 0.55 ft broad and up to 0.2 ft thick.

Room D, the one in the southwestern end of the main

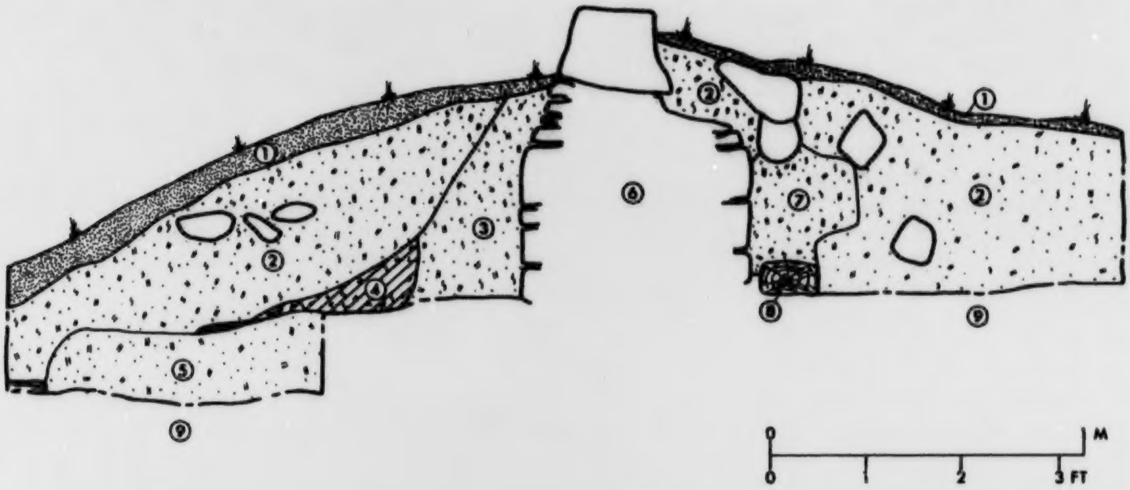

Figure 16. Northwest-southeast profile through the fireplace in Room B, looking southwest. Legend: 1, decaying vegetal material; 2, reddish brown sandy clay containing yellowish red burned clay and charcoal; 3, yellowish red burned clay grading into brown sandy clay which covers the back of the firebox; 4, brown ash, burned clay and charcoal which make up hearth fill; 5, fireplace apron composed of dark brown sandy clay; 6, back of the masonry fireplace; 7, yellowish red burned clay with some charcoal and reddish brown sandy clay; 8, northwest sill beam; 9, undisturbed reddish brown sandy clay. (Drawing by S. Epps.)

Figure 17. The southwestern portion of Room B (left) and the northeastern section of Room C (right), looking southeast. The partition wall extended from the central foreground to the circular post-in-ground remnant in the central background.

house, was 15.1 ft wide (NE-SW) and 15.9 ft long (NW-SE). Its features included a masonry fireplace base, the remains of a wooden floor, and two storage pits (Fig. 19).

The fireplace, which occupied the north corner, measured 3.7 ft (NW-SE) by 5.2 ft (NE-SW), and stood 3.6 ft high (Fig. 20). The 1.8-ft deep firebox was 2.4 ft across at the back but had splayed to 3.0 ft at the mouth. Its parallel-sided, 1.6 ft thick cheeks were braced by wooden uprights set in the exterior corners, as in Room A. The post in the southwestern cheek was either round or slightly squared and about 0.4 ft across. The base of its 1.2 ft long remnant was embedded in the ground to a depth of 0.3 ft. The other upright was 1.1 ft high and 0.35 ft square. The firebox was faced with a layer of clay that covered the back to a depth of 0.7 ft, curved across the corners and tapered out on the cheeks 0.45 - 0.7 ft from the mouth. The 1.1-ft deep clay hearth at the base of the firebox was filled with yellowish red (5YR 4/6) burned clay and charcoal overlying a thin stratum of pale brown (10YR 6/3) ash containing charcoal. An apron of brown (7.5YR 5/4) clay about 3.0 ft wide (NW-SE) and up to 0.4 ft thick fronted the fireplace. Its surface sloped down toward the southeast, possibly as a result of erosion.

The floor was represented by three fragmentary boards that ran along the soutwestern side of the fireplace complex and extended into the adjacent pit. They were up to 4.7 ft long, and 0.4 - 0.75 ft wide.

Of the pits, the largest (Fig. 21) was located approximately 4.4 ft from the northwest wall, 3.0 ft from the presumed southwest wall line and 1.2 ft from the fireplace. It was roughly circular in outline with a diameter of 6.2 - 7.5 ft and a depth of about 3.3 ft. Its sides were practically vertical and the bottom was flat. The juncture of these elements was reinforced with small, horizontal logs. The bottom was covered with spruce boughs. Several short logs with chopped and sawn ends were found above the boughs (Fig. 21). A number of these lay side by side and may represent stored firewood. The rest of the pit contained five different layers of intrusive material (Fig. 22). In descending order, these consisted of (1) yellowish red (5YR 5/6) burned clay, and charcoal; (2) mottled reddish brown (5YR 4/4) and dark reddish brown (5YR 3/4) sandy clay and fish bones; (3) reddish brown (5YR 4/4) clay; (4) grayish brown (10YR 5/2) ash and clay with some charcoal and yellowish red (5YR 5/6) burned clay; and (5) mottled dark reddish brown (5YR 3/4) sandy clay and reddish brown (5YR 4/4) clay with some bone.

The smaller pit (Fig. 23) was about 0.75 ft to the east of the former and 0.95 ft to the northwest of the adjacent upright in the southeast wall. Circular in outline, the depression had a diameter of 4.0 - 4.3 ft and a depth of 1.6 ft. Its sides sloped in gradually toward a flat bottom. Yellowish red (5YR 5/6) burned clay and charcoal overlying dark brown (7.5YR 3/2) clay containing an abundance of artifacts, fish bones and ash filled the feature.

A slight, squarish depression abutted the north edge of

Figure 18. Collapsed building components making up the upper fill of the pit in Room C, looking southeast.

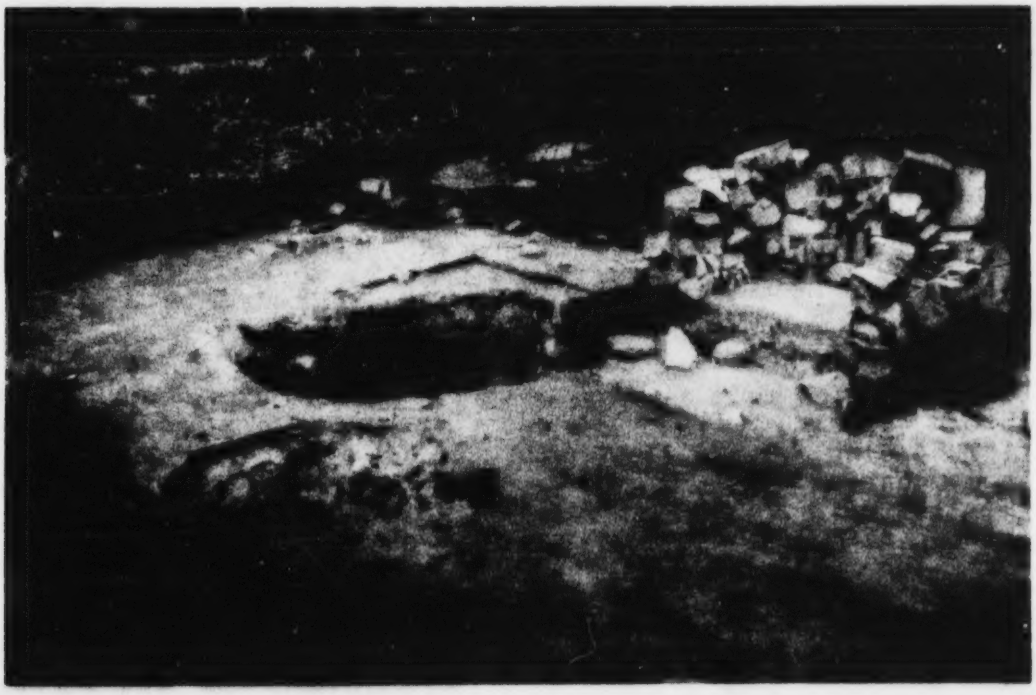

Figure 19. Room D in the main house, looking west.

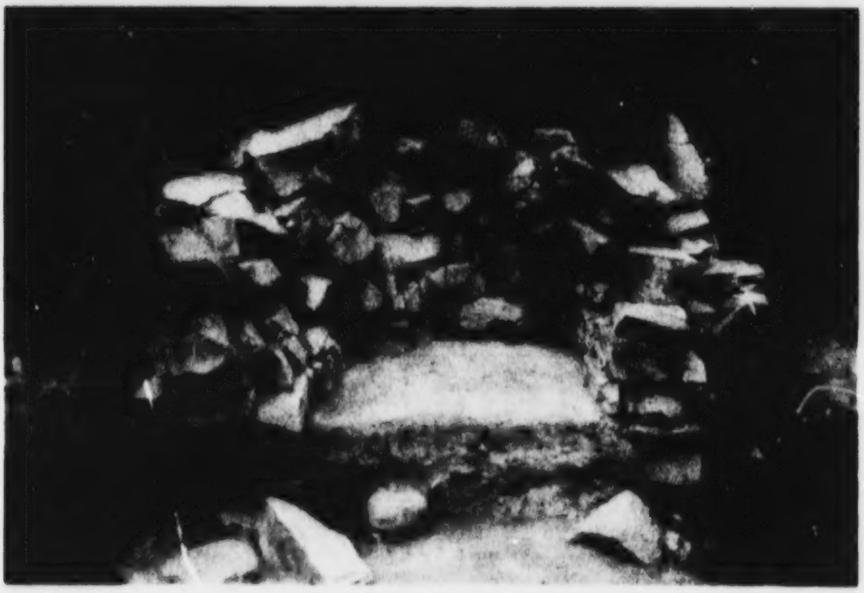

Figure 20. The fireplace base in Room D, looking northwest. The clay apron that fronted it has been removed.

Figure 21. The large pit in Room D, looking west-southwest.

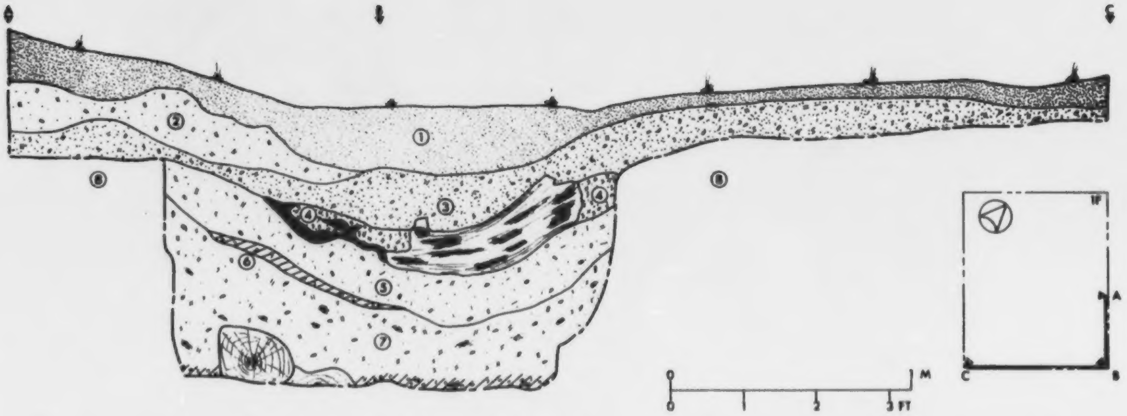

Figure 22. Soil profile of the large pit in Room D. Legend: 1, decaying vegetal material; 2, reddish brown sandy clay; 3, dark brown sandy clay containing yellowish red burned clay and charcoal; 4, yellowish red burned clay, charcoal, some dark brown sandy clay and wood fragments; 5, banded dark brown sandy clay and silty clay, reddish brown clay, charcoal and some yellowish red burned clay; 6, grayish brown ash with some yellowish red burned clay and charcoal; 7, mottled dark brown sandy clay, reddish brown clay, wood scraps, charcoal, tiny pieces of yellowish red burned clay and bird bone, and grayish brown ash; 8, undisturbed reddish brown sandy clay. (Drawing by S. Epps.)

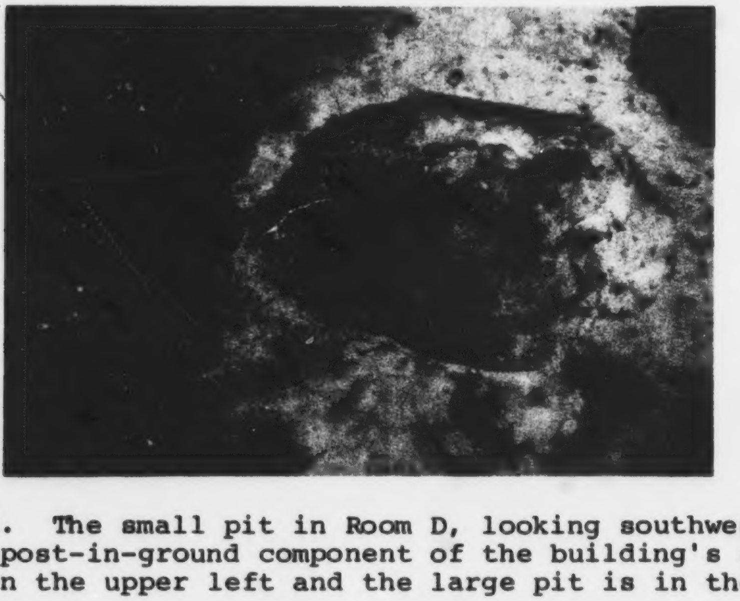

Figure 23. The small pit in Room D, looking southwest. The adjacent post-in-ground component of the building's southeast wall is in the upper left and the large pit is in the upper right.

the previous pit (Fig. 23). About 1.2 ft across and 0.5 ft deep, its function could not be determined.

The structure described above is without doubt the "main house" or "big house" described in the Nottingham House journals (HBCA, B.39/a/1-5a). This equation is based on two facts: (1) the interior dimensions of the archaeological structure (51.8 by 15.9 ft) and Fidler's main house (50 by 15 ft) are nearly identical, and (2) the layout of structure 1 corresponds quite well with that of the historical building as described by Peter Fidler (HBCA, B.39/a/1).

Construction of the main house commenced on 23 September 1802, with seven men making up the work force. The first step was to erect the exterior wall uprights and then fill the interstices with horizontal timbers. As the walls were going up, window frames were installed and although they are not mentioned, it is quite possible that the door frames were put in at about the same time. The walls were completed on the 27th, and tie beams were installed the next day to keep the walls from spreading under the weight of the roof. The ridge pole was then put in place, followed by the construction of the interior partitions and the filling in of the gables. Work on the roof began on 6 October with the laying of the roofing sticks. The mudding of this feature apparently commenced shortly thereafter but was not completed until 14 October. The exterior walls seem to have been chinked at about the same time. Coincident with the fabrication of the roof, the attention of some of the workers became focused on the interior of the house. Although work proceeded on several rooms at the same time, the construction sequence for each compartment seems to have been about the same. Where applicable, the fireplace and chimney were built first, followed by the installation of the windows, the mudding of the walls, the laying of the flooring and the hanging of the doors, respectively. The fireplace "hearth" and the ceiling were the next to be prepared, with the plastering of the walls and fireplaces being the final step. Although enough of the house had been completed by 9 October to enable the men to sleep in it for the first time, work continued thereon until 11 December when the final task - the "whitewashing" of Fidler's room - appears to have been accomplished. This was 80 days after the initiation of the project (HBCA, B.39/a/1, fol. 1-14).

Although the general appearance and composition of the building's walls and roof could be determined from the archaeological findings, details concerning such features as windows, doors, floors, ceilings and the upper portions of the fireplaces was either scarce or non-existent. Fortunately, these gaps can be filled in to some degree by using the historical documentation.

Concerning the windows, the historical record indicates that while only three rooms (the "men's house," "kitchen," and Fidler's "cabbin") had them during the first two seasons, all of the units were so equipped by 25 October 1804 (HBCA, B.39/a/5b, fol. 40, 41). As for the number of windows, various journal entries (HBCA, B.39/a/1, fol. 9; B.39/a/3, fol. 7; B.39/a/5b, fol. 40, 41) reveal that the "kitchen" had at least one, the "warehouse" and Fidler's chamber both had two, and the "men's house" had at least two. One of Fidler's windows is recorded as having been in the "end" or "eastern" wall of his room (HBCA, B.39/a/5a, fol. 4). The locations of the other windows are problematic but were probably much the same as those shown on the 1804 house plan (Fig. 9). The window openings on this plan (which is drawn to scale) measure 1.4 - 2.25 ft across with a mode of 1.75 ft, suggesting similar dimensions for the main house windows.

Although parchment covered the windows during the first season, glass lights were installed early in October of 1803 (HBCA, B.39/a/1, fol. 4; B.39/a/5b, fol. 9). If typical of the period, the panes would have ranged in size from 6 by 8 in. (0.5 x 0.68 ft) to 10 by 12 in. (0.83 x 1.0 ft) with 8 by 10 in. (0.68 x 0.83 ft) being the mode (Roth 1971: 25-26). Recovered fragments indicate they they were light yellowish green (10GY) to light bluish green (10BG) and ranged from 1.6 to 2.4 mm in thickness with a 1.8-mm mode. the postulated pane sizes coupled with the proposed window widths suggest that the windows were probably composed of four or nine lights set in a wooden sash in the configuration shown in Fig. 24. Most of the windows appear to have been fixed or immovable as Fidler makes a special point of mentioning the fact that on 15 May 1805, one of the men "made a shifting window frame & put it in" (HBCA, B.39/a/5b, fol. 53). The windows were replaced at the beginning of every trading season (HBCA, B.39/a/4, fol. 7; B.39/a/5a, fol. 6; B.39/a/5b, fol. 9).

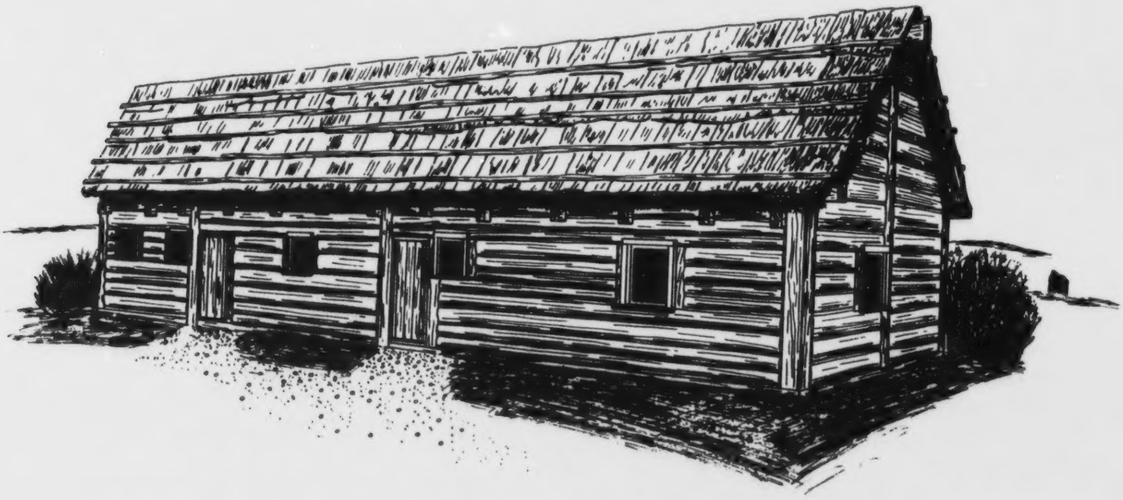

Figure 24. A conjectural reconstruction of the main house, looking west. (Drawing by S. Epps.)

Each of the rooms in the main house apparently had a single door (HBCA, B.39/a/1, fol. 8, 10, 11). Although their exact locations could not be determined, it is quite likely that they were similar to those of the doors shown on the 1804 plan (Fig. 9). The latter indicates that the doors of the "men's house" and "cook room" were located in the southwestern wall of each room, while those of the other two were interior doors that opened onto the cook room. Composed of sawn boards, the doors probably had measurements comparable to those provided on the 1804 plan: 2 ft 7 in. by 5 ft 3 in. (2.58 x 5.25 ft) for the men's house; 2 ft 11 3/4 in. by 5 ft 6 in. (2.98 x 5.5 ft) for the cook room; 2 ft 6 in. by 5 ft 8 in. (2.5 x 5.67 ft) for Fidler's room; and 3 ft 5 1/2 in. by 5 ft 3 in. (3.46 x 5.25 ft) for the warehouse (HBCA, B.39/a/1, fol. 8; B.39/a/5b, fol. 1). Albeit no door hardware was recovered from the building, it is known that at least two of the doors (those of the warehouse and Fidler's "cabbin") had locks (HBCA, B.39/a/1, fol. 8, 11). Other door hardware such as hooks, hinges, hasps and staples is listed in the post's inventory of stores on hand (HBCA, B.39/a/2, fol. 69; B.39/a/5b, fol. 81).

Fireplaces were located in three of the rooms. Situated against the northwest wall, their 4.2 - 5.2-ft wide by 3.7 - 4.5-ft deep masonry bases had fireboxes that were 1.8 - 3.0 ft across and 1.5 ft - 2.0 ft deep. Although their upper sections were missing, comparative data in the form of the extant chimney (Fig. 25) at the site of Fort Reliance (1833-4), N.W.T., and Thompson's *Narrative* (Glover 1962: 297) suggest that the base of each fireplace was probably 5.5 - 6.0 ft high, while the firebox would have been about 4 ft high. A journal entry (HBCA, B.39/a/5b, fol. 12) further reveals that some, if not all, of the clay aprons that fronted the fireplaces were enclosed by wooden frames.

A concentration of burned clay covered the fireplaces, intimating that the chimney stacks were of the mud and pole variety (Fig. 25) so commonly encountered in early northwestern fur trade architecture. Each stack is estimated to have stood about 7 ft high, approximately 4 ft of which would have protruded from the roof (Glover 1962: 297).

Each room was floored with boards set parallel to its long axis. The 0.33 - 0.75-ft wide and up to 0.2-ft thick boards rested on joists that were 0.38 ft - 0.55 ft broad and a maximum of 0.23 ft thick. The historical record states that the boards were sawn, planed and edged, and that at least some of them were cut from driftwood (HBCA, B.39/a/1, fol. 10, 12; B.39/a/4, fol. 7; B.39/a/5b, fol. 11). Trap doors provided access to the various sub-floor storage facilities (HBCA, B.39/a/2, fol. 38).

The loft of the main house was floored with sawn and planed boards (HBCA, B.39/a/1, fol. 11, 13). Apparently used for storage, the space was entered by means of hatches set in the floor (HBCA, B.39/a/1, fol. 13).

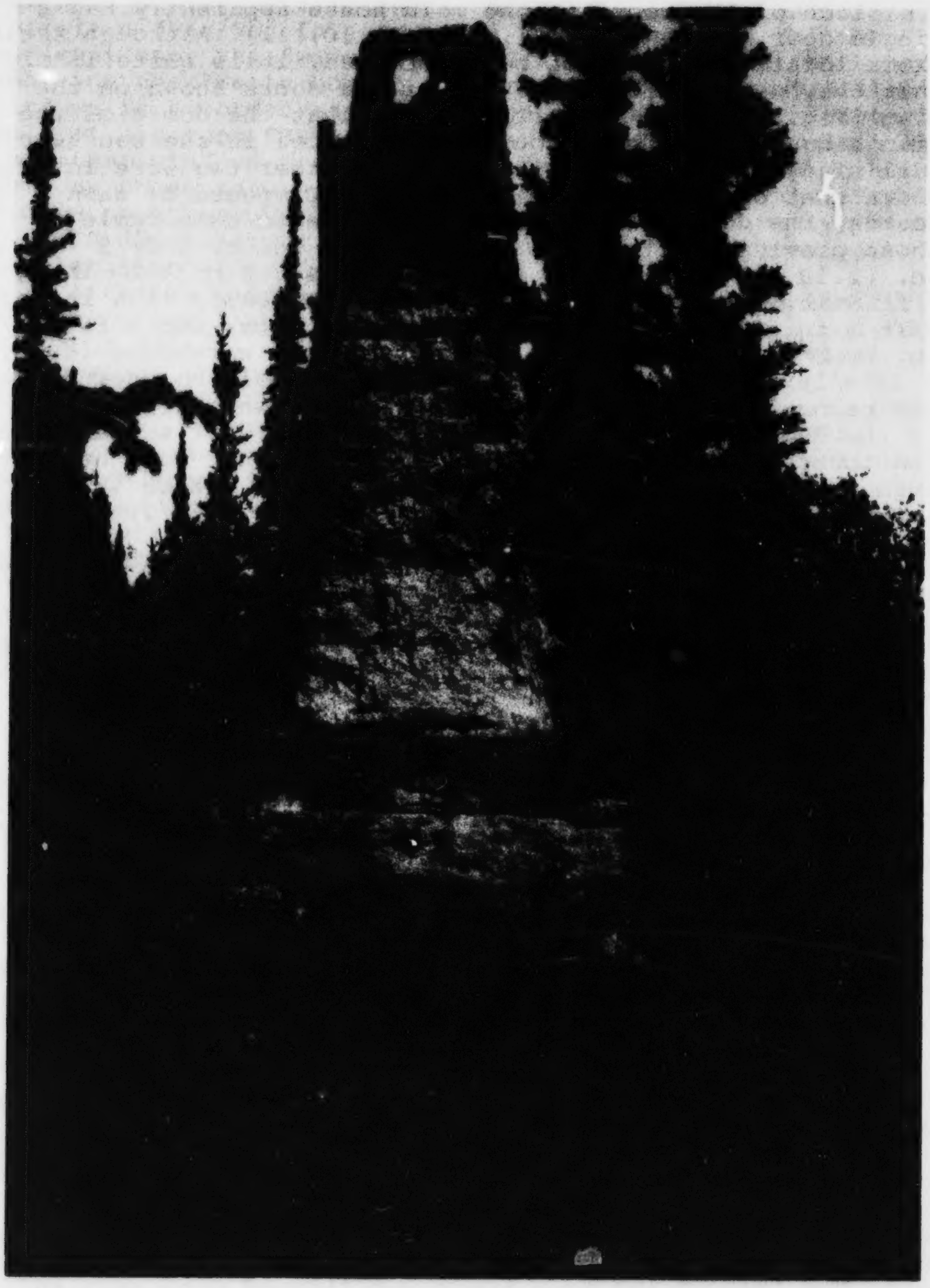

Figure 25. The extant chimney at the site of Fort Reliance, N.W.T. (Photo by J.V. Chism.)

In addition to providing architectural details, the historical documentation identifies the functions of the various rooms in the main house. According to the post journals, during the first season the compartments were respectively called Fidler's "cabbin," the "men's house," the "warehouse," and the "trading room," also variously referred to as the "guard room," "Indian room" and "Indian guard room" (HBCA, B.39/a/1). However, by October of 1804, the functions of some of the units had apparently changed, the rooms then being referred to as the cabbin, men's house, trading room, and kitchen, respectively (HBCA, B.39/a/5b, fol. 40, 41).

Correlating the archaeological remains with the historical evidence, Room A, situated in the northeastern end of the building, is clearly Peter Fidler's "cabbin." This is evinced by several journal entries that decry the erection of a North West Company watch house within 4 yd of Fidler's "eastern" or "end" window (HBCA, B.39/a/5a, fol. 4). Taking the temporally fluctuating nature of magnetic north into account, this obviously refers to the northeastern end of the main house and the small structure located near it. Fidler's plan (Fig. 9) of the proposed house (which appears to be a mirror image of structure 1) bolsters this interpretation because it shows Fidler's apartment in one end of the building.

Room B is identified as the trading room/kitchen on the basis of a journal entry stating that on 8 December 1802 the men "put up a bed Place for the Cook in the Indian Guard room" (HBCA, B.39/a/1, fol. 13). As it would have been next to impossible to sleep in an unheated room at this time of year, the only options for the trading room/kitchen are Rooms B and D, both of which had fireplaces. Of the two, the former is the likeliest as the 1804 house plan (Fig. 9) shows a "cook room" adjacent to Peter Fidler's compartment. Although Room B served as both a trading room and kitchen in the beginning, by October of 1804, the trading aspect appears to have been transferred to another chamber.

Room C and the warehouse are equatable as neither had a fireplace. While this compartment was the only major storage facility at the site during the first season, its importance as such probably decreased after a separate storehouse was constructed in September of 1803. In fact, there is a strong possibility that the warehouse had been transformed into a trading room by the fall of 1804. This is suggested by the fact that Fidler mentions putting "windows into the Mens House, Kitchen and My room" on 13 October 1804, and then doing the same in the "trading room" 12 days later (HBCA, B.39/a/5b, fol. 40, 41). Thus, the implication is that the kitchen and trading room were no longer the same at this point, and that the warehouse had become the trading room.

Through a process of elimination, the last unit, Room D, becomes the "men's house." Such an identification is supported, albeit tenuously, by the fact that the men's house is also an end room on the 1804 house plan (Fig. 9). Although this plan also shows the exterior end of the men's compartment occupied by two "cabbins," each measuring 6.6 ft by 8.5 ft and containing two sets of beds, a lack of interior wall remnants in the corresponding section of Room D intimates that this was not the case at Nottingham House.

The above identifications are seemingly substantiated by the horizontal distribution of the recovered artifacts (Table 1) and faunal remains (Appendix B). Most of the artifacts excavated from the main house were encountered in Rooms A (34%) and D (30%). Personal items, indicative of a domiciliary context, were primarily concentrated in Room A (Fidler's cabbin) and secondarily in Room D (the men's house). However, if such small objects as glass beads are discounted from the tally, Room D is found to contain 82 per cent of the remaining personal items with the other units each containing 18 - 20 per cent. Of all the personal items, the clay pipe material is probably the most diagnostic. Over 89 per cent of it was found in Room D, suggesting that this chamber served as the primary recreation area in the main house. That the room was also a workshop is suggested by the fact that over half of the scrap metal (predominately cask hoop and yellow metal kettle fragments) and wire was found in it. The room also contained the bulk (79%) of the faunal material, intimating that it functioned as the principal dining facility, and quite possibly a kitchen as well. This would be in keeping with the standing rules and regulations of the Hudson's Bay Company which prohibited the servants from dining with the "Commissioned Gentlemen and Clerks" (Allen 1977: 29).

Aside from personal items, Room A contained the second highest concentration of hardware (33%) and 25 per cent of the scrap sheet iron and wire, suggesting that it also served as a workshop on occasion. Room B, the proposed trading room/kitchen, contained the least amount of artifacts, only 853 (16% of the house total) being enumerated. Most of these were glass beads (37%) and lead shot (55%). Domestic items were unexpectedly low in frequency, only three per cent of the artifacts falling into this category. Room C, identified as the warehouse, contained a fairly high number (504) of personal items. However, the count is reduced to only 18 objects if glass beads are deleted from the inventory. Objects relating to subsistence and defence were also well represented, as were domestic articles. The unit also produced 50 per cent of the tools: four awls, a flake knife and a triangular file.

Insight into how the various rooms were furnished is provided by the post journals. As might be expected, the inventory for Fidler's chamber is the most complete. A bed that served Fidler and his wife was located over the cellar in the southeastern half of the room, while another one or two probably accommodated their five children, two of whom were born at the post (HBCA, B.39/a/1, fol. 11). A journal entry

Table 1. Horizontal Distribution of the Main House (Structure 1) Artifacts (by Room)

Description	Room A	Room B	Room C	Room D	Total
Personal Items					
Textiles					
Flax and yellow metal				1	1
Wool				1	1
Vegetal fibre					0
Unidentified fibre					0
Brass buttons					
Type A, var. 1		1		3	4
var. 2		1			1
var. 3				1	1
var. 4					0
var. 5	1				1
var. 6					0
var. 7	1				1
var. 8				1	1
var. 9					0
Type B, var. 1					0
var. 2			1		1
var. 3					0
var. 4					0
Type C, var. 1				1	1
Type D, var. 1					0
var. 2				1	1
var. 3					0
var. 4				1	1
Type E, var. 1				2	2
var. 2					0
Type F, var. 1				1	1
Pewter buttons					
Type A, var. 1	1	1	2	3	7
var. 2	2		1	1	4
var. 3				1	1
var. 4					0
Type B, var. 1				1	1
Bone buttons					
Type A, var. 1		1	1	2	4
Type B, var. 1			1		1
Cuff links					
Decorated	2				2
Plain		1			1
Clothing buckle				1	1
Footwear					0
Glass beads					
Drawn beads	1536	295	485	636	2952
Wound beads	164	22	1	6	193
Clay pipe stem beads				4	4
Perforated lead ball					0
Tinkling cones					
Yellow metal cones	3	2		26	31
Yellow metal cone blanks					0
Tinned iron cones	1				1
Silver brooches					
Concavo-convex circular					0
Flat ring brooch	1				1
Large brooch tongue					0
Finger rings					
Plain brass bands				4	4
Plain silver band		1			1
Intaglio single stone rings				2	2
Plain single stone ring		1			1
Multiple stone ring		1			1
Silver earbob	1				1
Brass tube					0
Sheet iron pendants				3	3
Sheet iron discs	1	1			2
Silver wire	1				1
Vermilion				1	1
Clay tobacco pipes					
Bowl/stem fragments				4	4
Bowl fragments	1	1	3	48	53
Stem fragments	4	7	2	104	117
Stone tobacco pipes					
Steatite pipe fragment				1	1
Claystone pipe blank			1		1
Tobacco box fragment					0
Gallipot fragments					
Creamware			5	16	21
Stoneware					0
Olive green bottle fragments					
Round-sectioned				1	1
Square-sectioned					0
Unattributable fragments					0
Yellowish green bottle frags.					0
Colourless bottle fragments					
Round-sectioned				10	10
Square-sectioned					0
Fiddle shaped				2	2
Tinned iron box components					0
Pocketknives					
Bulbous butt knives				2	2
Squared butt knife					0
Unattributable blade frags.		1	1		2
Bone comb				1	1
Mirror fragments				13	13
Printed paper					0
Subtotals	1720	337	504	906	3467
Domestic Items					
Fire Steels					
Ovate fire steels	1				1
Steels with proj. handles	1		1		2
Yellow metal kettles			1		1
Yellow metal kettle frags.					
Body fragments		1	1	18	20
Rim lugs					0
Rim reinforcing rod				1	1
Rivets					0
Kettle cover fragments					
copper					0
tin plate					0
Kettle hook					0
Kitchen (butcher) knives					0
Table knives					
Brass-handled					0
Wooden-handled					0
Unattributable blade frags.			1		1
Pearlware saucer fragments	2			3	5
Glass stemware	1				1

Table 1. Cont'd

Description	Room A	Room B	Room C	Room D	Total
Domestic Items					
Unidentified glass tatleware					
Decorated glass		1			1
Plain glass					0
Cask fragments					
Head and stave fragments			10		10
Hoop fragments			3	14	17
Funnel (?) fragment			1		1
Furniture lock				1	1
Copper hinges	1				1
Thimbles					
Yellow metal					0
Composite				1	1
Needle					0
Thermometer tube				1	1
Tinned sheet iron handles	1			1	2
Tinned sheet iron lug				1	1
Red ochre				1	1
Subtotals	7	2	18	42	69
Subsistence and Defence					
Gun screw					0
Barrel fragment					0
Barrel tangs					0
Barrel lug			1		1
Trigger					0
Trigger plate			1		1
Trigger guard					0
Butt plate				1	1
Ramrod thimbles					
Plain					0
Multi-ribbed				1	1
Gun worms					
Socket gun worm			1		1
Wire gun worms			2		2
Gunflints					
Blade gunflints	1	2	6	7	16
Spall gunflints			4	4	8
Unattributable fragments	1	2		3	6
Lead balls	2	1	7	3	13
Lead shot	61	473	532	591	1657
Stone projectile points					0
Fishhooks			4	1	5
Lead line weight (?)	1				1
Subtotals	66	478	558	611	1713
Tools and Hardware					
Ferrous metal awls					
Offset		1	4	1	6
Straight					0
Bone awl					0
Gimlet				1	1
Axe head					0
Plane iron	1				1
Flake knife			1		1
Homemade canoe (?) knife					0
Stone bifaces					0
Stone scrapers					
End scrapers					0
Side/end scraper					0
Side scraper					0
Files					
Triangular			1		1
Rectangular					0
Scoria abraders					0
Fleshers	2				2
Thumb latch lift bar					0
Wrought-iron nails					
Rose head	12	3	6	22	43
Rose-T	2	3		4	9
Clasp	4	1	2	12	19
L-Head	2	4		8	14
Flat head		1			1
Indeterminate	21	8	6	11	46
Brass wire nail					0
Brass tack				1	1
Pane glass fragments	4	2	1	5	12
Ferrous metal rings			2		2
Iron wire	7	1	3	4	15
Brass wire	3			2	5
Subtotals	58	24	26	71	179
Business					
Lead seal					0
Slate pencil				1	1
Penknife					0
Subtotals	0	0	0	1	1
Transportation					
Brass bell					0
Subtotals	0	0	0	0	0
Miscellaneous					
Unidentified ferrous objects			2		2
Amorphous ferrous metal	1	4		7	12
Sheet iron container remnants					
Round/oval-sectioned					0
Square/rectangular-sectioned		1	1		2
Unattrib. container cover					0
Sheet iron scrap	13	5	5	6	29
Miscellaneous brass				2	2
Miscellaneous lead	1	1	1	7	10
Melted glass				1	1
Miscellaneous stone				2	2
Unidentified bone objects	2				2
Misc. worked bone and antler		1		1	2
Leather and hide fragments					0
Birchbark				14	14
Subtotals	17	12	9	40	78
Totals	1868	853	1115	1671	5507

for 17 September 1804 reads "one man making a small bed for the 2 boys," suggesting that Fidler's two eldest sons, Thomas (9) and Charles (5), had a bed to themselves (HBCA, B.39/a/5b, fol. 37). A cupboard was installed in November of 1802, and may have occupied the 1.8-ft wide by 4.2-ft deep space between the fireplace and the northeast wall (HBCA, B.39/a/1, fol. 11). Other furnishings included two sets of shelves, a table and chairs, a chest measuring 36 in. long by 20 in. wide by 19 in. deep, and two boxes, one of which was 22 in. long, 13 in. wide and 10 in. deep (HBCA, B.39/a/1, fol. 13-14; B.39/a/2, fol. 39, 43; B.39/a/5b, fol. 10).

The furnishings in the trading room/kitchen included some shelves, the cook's bed and a cupboard "to put dishes etc in" (HBCA, B.39/a/1, fol. 9, 13), while the men's house contained a storage chest and at least four beds (HBCA, B.39/a/1, fol. 18; B.39/a/2, fol. 37, 39, 40). Other furniture known to have been present in the main house but that cannot be assigned to a specific compartment includes four tables, at least three chairs, a chest, bench and a gun rack (HBCA, B.39/a/1, fol. 11; B.39/a/2, fol. 42, 47; B.39/a/3, fol. 9, 19; B.39/a/4, fol. 9; B.39/a/5b, fol. 10).

Structure 2 - Storehouse

Tentatively identified as the post's storehouse, structure 2 was extremely fragmentary, consisting of only two corner post remnants and a large debris-filled pit (Fig. 26). Oriented parallel to the main house, the building was approximately 17.5 ft to the front of Room C at an elevation of 696 ft A.S.L.

The uprights, both of which were squared, marked the west and south corners of the structure. The western post, which had a 0.2-ft wide and 0.25-ft deep, squared, vertical groove in its southeastern face, measured 0.65 ft (NE-SW) by 0.8 ft (NW-SE). It was set in a rectanguloid pit that was 4.4 ft long (NE-SW), 3.0 ft wide (NW-SE) and up to 1.6 ft deep. The sides of the depression were vertical and the bottom was flattish.

The southern upright (Fig. 27) was 11.4 ft to the southeast of the previous one. Measuring 0.5 ft (NE-SW) by 0.55 ft (NW-SE), the post had a 0.17-ft wide by 0.1-ft deep groove in its northwest side and a flat butt. The posthole, square in outline with vertical sides and a flat bottom, was 3.4 - 3.6 ft across and 2.3 ft deep. The other corner uprights, situated at least 15 ft to the northeast, could not be located because of a lack of time.

The pit (Fig. 28), which probably functioned as a sub-floor storage facility, was dug into compact silty clay 6.1 ft to the northeast of the uprights. Circular in outline,

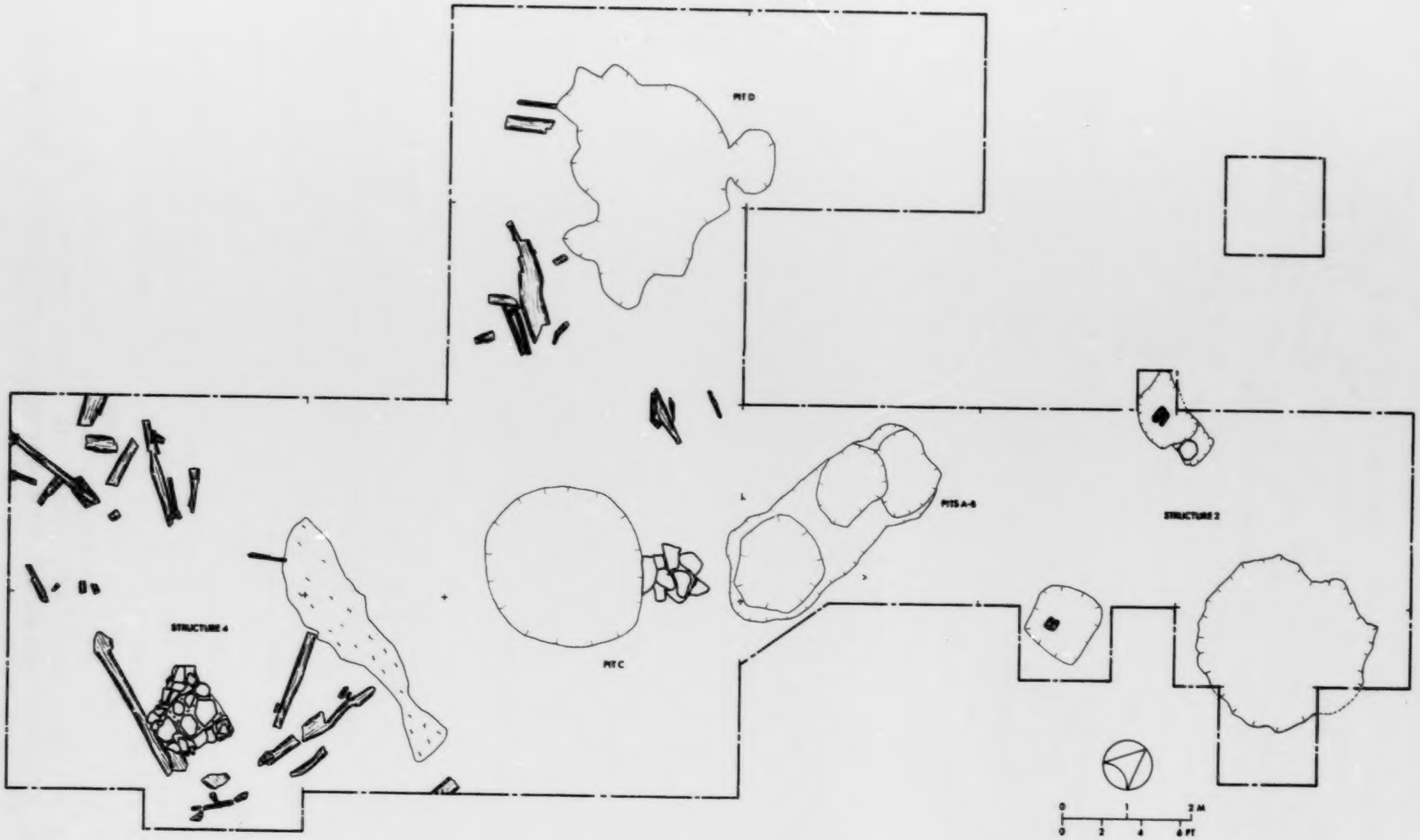
PIT D
PITS A-B
STRUCTURE 2
PIT C
STRUCTURE 4
0
1
2 M
0
2
4
6 FT

Figure 26. Ground plan of the storehouse (structure 2), southern North West Company watch house (structure 4) and pits A-D. (Drawing by S. Epps.)

Figure 27. The southern corner post remnant of the storehouse (structure 2), looking south.

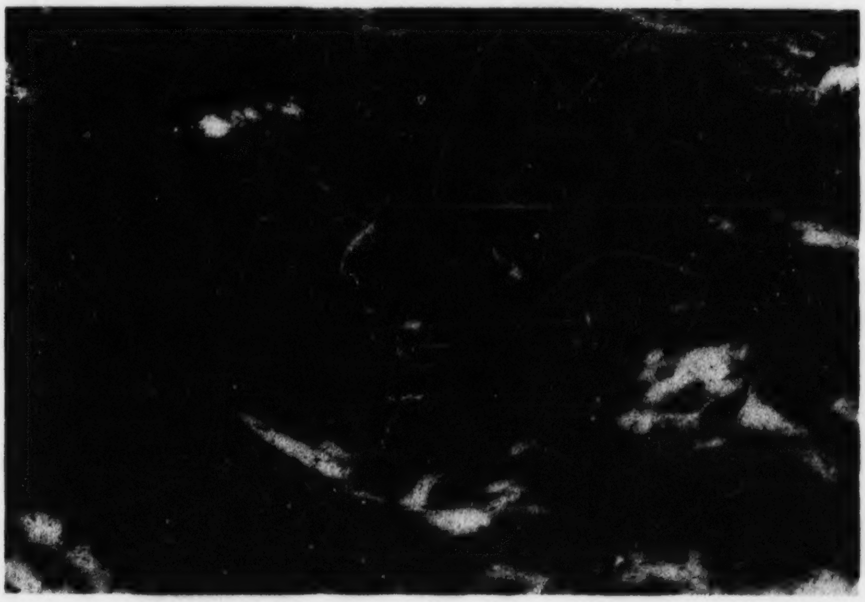

Figure 28. The storehouse pit during the final clean-up stage, looking south.

the concavity was 8.6 - 8.8 ft across and 3.1 ft deep. It was filled with charred building components. The upper fill consisted primarily of chinking, with several poles and two plank fragments also being encountered (Fig. 29). The poles, one of which exhibited a cut, wedge-shaped end, were 0.12 - 0.18 ft in diameter and doubtless served as roofing sticks. The plank remnants were 0.75 - 1.8 ft long, 0.25 - 0.65 ft wide and 0.08 - 0.13 ft thick. The broader of the two had a rectangular cross-section and one squared end.

Farther down were a number of slabs or decomposed wall logs that were oriented northwest-southeast for the most part. These were 1.9 - 6.4 ft long, 0.34 - 0.76 ft wide and 0.2 - 0.3 ft thick.

The bottom of the pit contained approximately nine split planks of spruce (Picea sp.; A. Douglas 1978: pers. com.) that had flat, trimmed edges and extended northeast-southwest. Measuring 3.2 - 5.2 ft in long, 0.25 - 0.6 ft in broad and up to 0.27 ft thick, the planks, three of which were contiguous, represent the floor of the structure.

The identification of structure 2 as the storehouse is based on the fact that the interior dimensions of the excavated building (11.4 by at least 15 ft) are compatible with those recorded by Thomas Swain (11 by 15 ft)(HBCA,

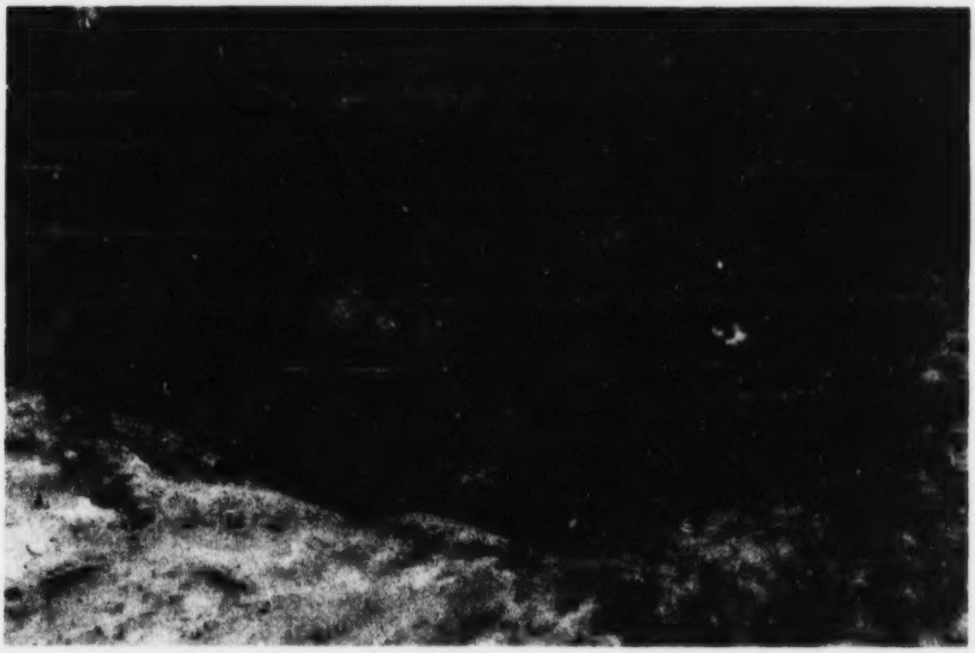

Figure 29. The upper fill of the storehouse pit, looking south-southeast.

B.41/a/2, fol. 12). The absence of a fireplace precludes its being a dwelling.

The storehouse was erected during the summer of 1803, with the work force apparently alternating between two and four men. After obtaining timber at the back of the island, chopping the corner posts and sawing boards, the crew began construction on the 22nd of August. Within five days, the walls had been raised and the roof installed. Plastering of the walls commenced on the 29th, and the laying of the floor was begun three days later. The structure was apparently completed on 5 September, the final task being the hanging of the door. A drain was cut around the building shortly before the site was abandoned (HBCA, B.39/a/5a, fol. 15; B.41/a/2, fol. 10-12).

The archaeological evidence suggests that the storehouse, like the main house, was erected using a combination of post-in-ground and post-on-sill construction techniques. While the corner uprights were anchored in the ground, the others (probably one in the centre of either end wall to support the ridge pole and possibly another adjacent to the door opening) were apparently tenoned into the sills.

The walls were chinked with silty to sandy clay mixed with grass. After being applied, the chinking material was wiped horizontally to smooth its surface. Impressions in the recovered chinking revealed that the horizontal wall components, probably flattened or partially squared logs, had been about 0.46 - 0.78 ft across.

As they are not mentioned in Swain's journal (HBCA, B.41/a/2), the indication is that the storehouse did not have windows. The paucity of pane glass in the relevant excavation units (only three pieces were found, some or all of which may be intrusive) would tend to bear this out.

Structure 2 and its immediate environs produced just under two per cent of the site's artifacts. The bulk of these were glass beads, and bottle and clay pipe fragments (Table 2).

Table 2. Horizontal Distribution of the Nottingham House Artifacts (by Feature, Excluding the Main House)

Description	Str. 2	Str. 3	Str. 4	Pits A-B	Pit C	Pit D	Tests	Total
Personal Items								
Textiles								
Flax and yellow metal								0
Wool				6				6
Vegetal fibre				2				2
Unidentified fibre				1				1
Brass buttons								
Type A, var. 1	1		2					3
var. 2								0
var. 3								0
var. 4				1				1
var. 5								0
var. 6				1				1
var. 7								0
var. 8								0
var. 9	1				1			2
Type B, var. 1				2				2
var. 2		1						1
var. 3							1	1
var. 4				1				1
Type C, var. 1								0
Type D, var. 1				1				1
var. 2								0
var. 3			1					1
var. 4								0
Type E, var. 1								0
var. 2				1				1
Type F, var. 1								0
Pewter buttons								
Type A, var. 1				1				1
var. 2	1			1		1		3
var. 3								0
var. 4					1			1
Type B, var. 1								0
Bone buttons								
Type A, var. 1				1				1
Type B, var. 1								0
Cuff links								
Decorated								0
Plain								0
Clothing buckle								0
Footwear				1				1
Glass beads								
Drawn beads	29	22	139	225	6	6	8	435
Wound beads	1	2	3	4	7	12	1	30
Clay pipe stem beads	2			1			1	4
Perforated lead ball						1		1
Tinkling cones								
Yellow metal cones				1	1			2
Yellow metal cone blanks			1	1				2
Tinned iron cones	1			2		1		4
Silver brooches								
Concavo-convex circular	1			1				2
Flat ring brooch								0
Large brooch tongue			1					1
Finger rings								
Plain brass bands								0
Plain silver band								0
Intaglio single stone rings					1			1
Plain single stone ring								0
Multiple stone ring								0
Silver earbob								0
Brass tube				1				1
Sheet iron pendants			3			1		4
Sheet iron discs								0
Silver wire								0
Vermilion	1						1	2
Clay tobacco pipes								
Bowl/stem fragments	2	1		5	3	2	1	14
Bowl fragments	3	3		24	1	2	3	36
Stem fragments	13	3	4	49		6		75
Stone tobacco pipes								
Steatite pipe fragment								0
Claystone pipe blank								0
Tobacco box fragment				1				1
Gallipot fragments								
Creamware			16	4	1	1		22
Stoneware	5			4				9
Olive green bottle fragments								
Round-sectioned						30		30
Square-sectioned	3		1	2				6
Unattributable fragments	7							7
Yellowish green bottle frags.	4							4
Colourless bottle fragments								
Round-sectioned		1		1				2
Square-sectioned				1				1
Fiddle-shaped								0
Tinned iron box components	1						1	2
Pocketknives								
Bulbous butt knives				2				2
Squared butt knife				1				1
Unattributable blade frags.								0
Bone comb								0
Mirror fragments		3						3
Printed paper				14				14
Subtotals	76	36	171	364	22	63	17	749
Domestic items								
Fire Steels								
Ovate fire steels								0
Steels with proj. handles	1			1				2
Yellow metal kettles					1			1
Yellow metal kettle frags.								
Body fragments	3	1		33	1	3		41
Rim lugs				2				2
Rim reinforcing rod								0
Rivets			2					2
Kettle cover fragments								
copper				1				1
tin plate	2	2		3				7
Kettle hook			1					1
Kitchen (butcher) knives		1	1			1		3
Table knives								
Brass-handled	1			2				3
Wooden-handled				1				1
Unattributable blade frags						1		1
Pearlware saucer fragments	5			48				53
Glass stemware								0

Table 2. Cont'd

Description	Str. 2	Str. 3	Str. 4	Pits A-B	Pit C	Pit D	Tests	Total
Domestic Items								
Unidentified glass tableware								
Decorated glass				1				1
Plain glass				1		5		6
Cask fragments								
Head and stave fragments								0
Hoop fragments	1			16	3	5	1	26
Funnel (?) fragment								0
Furniture lock								0
Copper hinges	1							1
Thimbles								
Yellow metal				1				1
Composite								0
Needle				1				1
Thermometer tube								0
Tinned sheet iron handles								0
Tinned sheet iron lug								0
Red ochre						1		1
Subtotals	14	4	4	111	5	16	1	155
Subsistence and Defence								
Gun screw			1					1
Barrel fragment			1					1
Barrel tangs			1			1		2
Barrel lug								0
Trigger		1						1
Trigger plate								0
Trigger guard	1							1
Butt plate								0
Ramrod thimbles								
Plain		1						1
Multi-ribbed					2			2
Gun worms								
Socket gun worm								0
Wire gun worms								0
Gunflints								
Blade gunflints	1	1				1		3
Spall gunflints				1		1		2
Unattributable fragments				1				1
Lead balls	1	1				1		3
Lead shot	2	3	12	10	1	1	2	31
Stone projectile points	1				1	1		3
Fishhooks				1		1		2
Lead line weight (?)								0
Subtotals	6	7	15	13	4	7	2	54
Tools and Hardware								
Ferrous metal awls								
Offset		1						1
Straight				1			1	2
Bone awl		1						1
Gimlet								0
Axe head			1					1
Plane iron								0
Flake knife								0
Homemade canoe (?) knife			1					1
Stone bifaces	1		1					2
Stone scrapers								
End scraper	1							1
Side/end scraper		1						1
Side scraper							1	1
Files								
Triangular								0
Rectangular	1	1						2
Scoria abraders			1		1			2
Fleshers								0
Thumb latch lift bar		1						1
Wrought-iron nails								
Rose head	2	1	12	6	2	3		26
Rose-T			1	6				7
Clasp	2	1		4				7
L-Head					1			1
Flat head								0
Indeterminate	2	1	14	2		1	1	21
Brass wire nail						1		1
Brass tack								0
Pane glass fragments	3	1		39	1	1	2	47
Ferrous metal rings								0
Iron wire	1		2	5	4			12
Brass wire				3	1			4
Subtotals	13	9	33	66	10	6	5	142
Business								
Lead seal						1		1
Slate pencil								0
Penknife		1						1
Subtotals		1				1		2
Transportation								
Brass bell	1							1
Subtotals	1							1
Miscellaneous								
Unidentified ferrous objects				1	1			2
Amorphous ferrous metal					1			1
Sheet iron container remnants								
Round/oval-sectioned					1			1
Square/rectangular-sectioned		1						1
Unattrib. container cover			1					1
Sheet iron scrap	1	2	1	41			1	46
Miscellaneous brass				1				1
Miscellaneous lead				1				1
Melted glass	1			6				7
Miscellaneous stone	14			1	3	5		23
Unidentified bone objects		1	1					2
Misc. worked bone and antler	2	1		6				9
Leather and hide fragments			3				1	4
Birchbark				4				4
Subtotals	18	5	6	61	6	5	2	103
Totals	128	62	229	615	47	98	27	1206

Structure 3 - Northern North West Company Watch House

An extremely fragmentary structure was located at the northern end of the site at an elevation of about 695 ft ASL (Fig. 6). Consisting of a masonry fireplace base and a section of the adjacent sill beam and flooring (Figs. 30 and 31), the remains were situated approximately 15.5 ft to the east-northeast of the main house and 18 ft from the upper edge of the rock outcrop forming the north shore of the island.

The fireplace remnant (Fig. 32) was formed of angular slabs of gneiss set in reddish brown (5YR 5/3) clay. Measuring 2.5 ft (NW-SE) by 3.3 ft (NE-SW), this feature stood to a maximum as found height of 2.0 ft. The firebox, which faced southeast, was 1.3 ft wide at the back, 1.6 ft wide at the mouth and 1.4 ft deep. Its parallel-sided cheeks were 0.80 - 0.87 ft thick. The puddled clay hearth was filled with light brown (7.5YR 6/4) ash containing charcoal, burned bones and

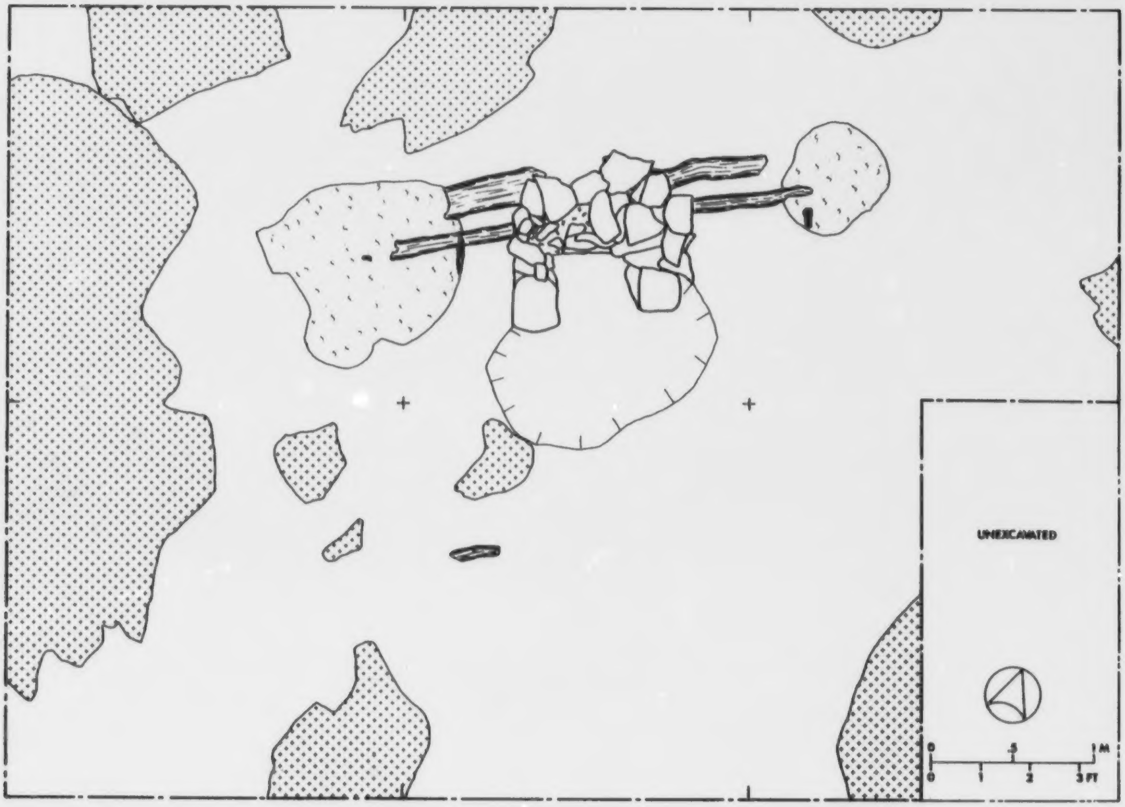

Figure 30. Ground plan of the northern North West Company watch house (structure 3). (Drawing by S. Epps.)

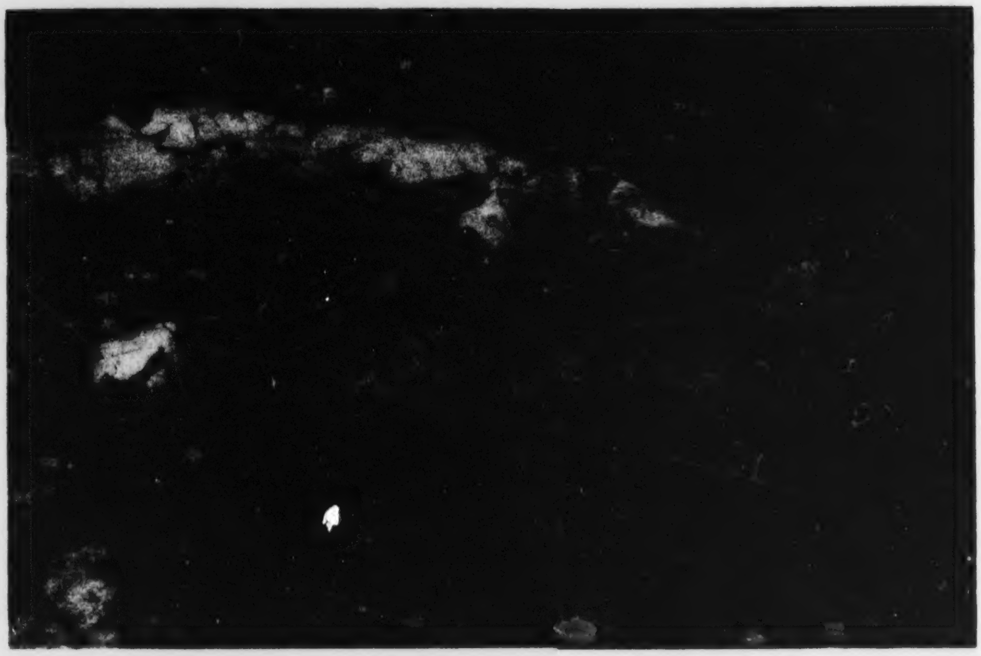

Figure 31. The remains of the northern watch house, looking northwest.

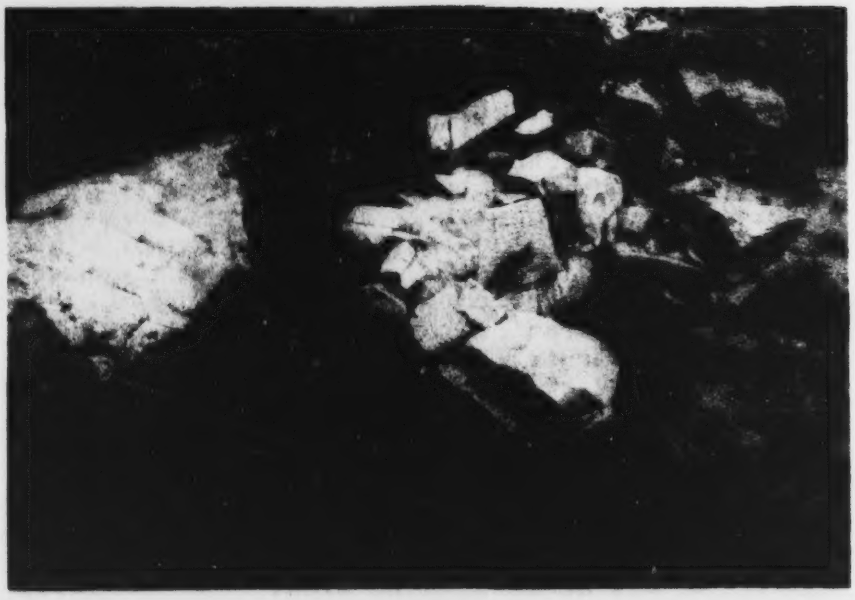

Figure 32. The fireplace in the northern watch house, looking north. The hearth and associated depression have been removed.

yellowish red (5YR 5/6) burned clay. This material spilled out into an ovate depression about 4.7 ft long (NE-SW), 2.5 ft wide (NW-SE) and approximately 0.15 ft deep which fronted the fireplace (Fig. 30). A dearth of stone and a concentration of burned clay above and adjacent to the fireplace revealed that the chimney had been of the mud and pole variety.

The fireplace abutted against a 6.8-ft long remnant of the northwest wall's sill beam which was 0.6 ft square. A joist paralleled the beam on either side of the fireplace. The northeastern segment (Fig. 32), located 0.3 - 0.4 ft from the sill, was 0.3 ft wide and 0.17 ft thick. It extended 2.5 ft away from the fireplace. The southwestern segment of the joist was 0.42 ft wide and 0.05 ft thick. Set 0.3 ft from the sill beam, the timber extended for a distance of 3.0 ft from the fireplace and was overlapped at its centre by a perpendicular floorboard fragment. A piece of what may have been another joist was situated 6.1 ft to the southeast of the previous one. It was 1.0 ft long, 0.25 ft wide and 0.06 ft thick.

Although no other sill beams were encountered, a discontinuous, approximately 1.1-ft wide by 0.2-ft deep linear depression in the ground surface near the southwestern edge of the excavation may represent the line of the building's southwest wall. Roughly perpendicular to the northwest wall, the depression was situated approximately 6.4 ft to the west-southwest of the fireplace and 12 ft to the east-northeast of the main house.

The roof appeared to have been composed of roofing sticks chinked and covered with reddish brown (5YR 5/3) to very dark grayish brown (10YR 3/3) silty clay containing pockets of reddish brown (5YR 5/3) clay intermixed with grass. It is not known whether this material was weatherproofed with a layer of bark.

Even though the structure was extremely fragmentary, enough survived to suggest that it had been about 15 ft long (NE-SW) and 8 - 10 ft wide (NW-SE). The former dimension corresponds to the distance from the southwestern edge of the linear depression to the northeastern side of a burned clay and charcoal concentration that appeared to mark the building's north corner (Fig. 30). This would place the fireplace about 6.4 ft from the southwest wall and 4.0 ft from the northeast wall.

Regarding the northwest-southeast axis, bedrock outcrops at the historical ground level in the southeastern portion of the excavation would seemingly preclude the location of a wall farther than 10 ft from the northwest sill beam. Conversely, the location of the possible southeastern joist fragment hints that the house was at least 8 ft wide.

No post holes were encountered at the presumed corners of the building, suggesting that the structure was of post-on-sill construction. No information concerning such architectural features as windows, doors and ceilings was retrieved.

The stratigraphic evidence implies that the house site was built upon on two different occasions. The original ground surface in the immediate vicinity of the structure undulated slightly and was covered with a very thin (0.07 ft maximum) layer of brown (7.5YR 5/4) ash, charcoal, and burned bone fragments that apparently represents the original burning and clearing of the site and/or trash deposited in the area before the erection of the house. Overlying this deposit was a 0.15 - 0.3-ft thick layer of very dark grayish brown (10YR 3/3) silty clay containing scattered charcoal and burned clay which appears to be material used to level the building site before the construction of the first structure. Next in the sequence was an approximately 0.15-ft thick stratum of brown (7.5YR 5/4) ash, charcoal, calcined bone and artifacts resulting from the first occupation. Directly above this was a 0.2-ft thick deposit of very dark grayish brown (10YR 3/3) silty clay containing charcoal, ash, bones and artifacts. The fireplace, sill beam and joist remnants all rested on this layer which represents the second levelling of the house site.

The post journals identify structure 3 as a North West Company watch house. Originally erected within 200 yd of the post during the early summer of 1805, the building was removed to within 4 yd of Peter Fidler's "Eastern window & directly opposite it" on 26 September 1805. Fearing that sparks from the Old Company's chimney might set the main house on fire, Fidler complained to James Mackenzie, the "master proprietor" of Fort Chipewyan, who then ordered that the watch house be moved about 80 yd away to the southeast point of the island. Occupied by a Frenchman and his mistress, the building remained there until 21 January 1806, when it was moved back to its previous site adjacent to the northeast end of the main house. This led Fidler to protest once again, but this time to no avail. Being too few to force the removal of the building, the English retaliated by putting up a short stockade and a series of railings to keep the Canadians from passing close to the Hudson's Bay Company buildings. The house remained in use until Nottingham House was abandoned (HBCA, B.39/a/5a, fol. 2-13).

Shortly before departing, Fidler measured the exact distance from the watch house to his window and found it to be 4 yd, 6 in. (HBCA, B.39/a/5a, fol. 17). This is compatible with the archaeological findings, as is the double occupation of the house site. The absence of artifacts directly attributable to the Hudson's Bay Company in structure 3 (Table 2) also tends to substantiate its North West Company affiliation.

Structure 4 - Southern North West Company Watch House

Another watch house appears to have been located at the southern end of the site (Fig. 26) approximately 47 ft to the south of the main house and about 29 ft to the west of the driftwood-filled cove. The structure was extremely fragmentary, being represented by a decrepit fireplace and a section of the southern sill beam.

The fireplace remnant, composed of gneiss slabs bonded in reddish brown (5YR 4/4) clay, had a trapezoidal outline (Fig. 33). Standing 2.2 ft high, it was 2.7 ft wide at the back, 4.4 ft across at the front and 3.5 ft deep. The 1.3 - 2.3-ft wide by 1.8-ft deep firebox had a northern aspect and appeared to have been faced with clay. Its cheeks expanded toward the mouth where they achieved their maximum breadth of 0.95 - 1.15 ft. The hearth, formed of five flattish rocks set in and covered with reddish brown clay, contained charcoal and very pale brown (10YR 7/4) ash. This fill also extended into the building for a distance of 1.7 ft. The fireplace did not have an apron. Its chimney stack was of the same construction as that of structure 3.

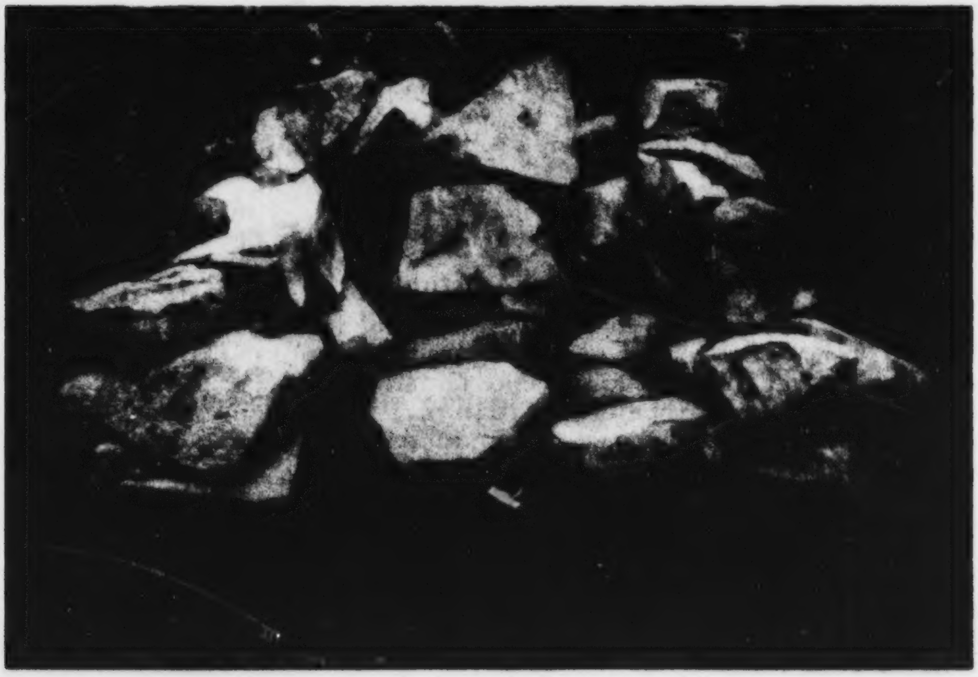

Figure 33. The fireplace in the southern North West Company watch house (structure 4), looking south.

The back of the fireplace rested against an 8-ft segment of the southern sill beam. The 0.55-ft square timber extended 0.4 ft to the east of the fireplace and about 4.9 ft to the west of it, terminating at what appeared to be the southwestern corner of the building. Although there was no trace of the east or west wall, the northern one was delineated by a 1.8 - 3.3-ft wide band of chinking and charcoal situated 10 - 13 ft from the south wall. The western end of the deposit was in line with the corresponding part of the southern sill, while the eastern end was 13.5 ft hence (Fig. 26). Thus, the implication is that the east-west axis of the building was approximately 13.5 ft long, while the north-south axis was between 12.5 and 13.5 ft long. Such dimensions would put the fireplace in the approximate centre of the south wall. The absence of postholes at the proposed corners of the house intimates that it was not of post-in-ground construction.

The interior of the structure was filled with a jumble of wood fragments overlain and intermixed with silty clay and chinking, indicating that the roof had been formed in the same manner and of the same materials as that of the other watch house. Several wood scraps encountered at the original ground level in the area to the east of the fireplace may represent floorboards. Their grain was oriented east-west.

Structure 4 appears to be the last North West Company watch house to be built at the site. Work on this structure began on 28 January 1806, with the Canadians "hauling the logs of one of the New Co. old Houses here with a Horse." The spot chosen for the building was recorded by Fidler as being "within 10 yards of the Mens Door & opposite it." The house was completed on the 6th of February, and was still standing in May when "4 Frenchmen came over to put up one of their Chimneys which are fallen down" (HBCA, B.39/a/5a, fol. 11-17).

While the location of the building opposite the men's house door is compatible with the archaeological findings, the distance is not; structure 4 is just slightly over 17 yd from the probable location of said feature, a discrepancy of 7 yd. However, as there is nothing that even remotely resembles a watch house within a 10-yd radius of the men's house, the implication is that structure 4 and the watch house are one and the same, and that the discrepancy in the distances is simply due to an underestimation on the part of Peter Fidler. The few artifacts that were found in structure 4 (Table 2) support a brief, non-Hudson's Bay Company occupation.

Borrow/Trash Pits A-B

A slightly depressed rectanguloid area was situated about

23 ft to the southeast of the mens' quarters in the main house, 8 ft to the southwest of the storehouse and approximately 16 ft to the north-northeast of the southern watch house (Fig. 26). Measuring 12.3 ft (north-south) by 5.0 - 5.5 ft (east-west), the depression had a pit in either end (Fig. 34). The northern one (pit A) consisted of two conjoined oval cavities that had near vertical sides and relatively flat bottoms (Fig. 35). The major cavity was 4.0 ft long (east-west), 3.5 ft wide (north-south) and 4.0 ft deep, while the minor one measured 4.0 ft (east-west) by 2.6 ft (north-south) by 2.6 ft deep.

Figure 34. Borrow/trash pits A-B, looking south.

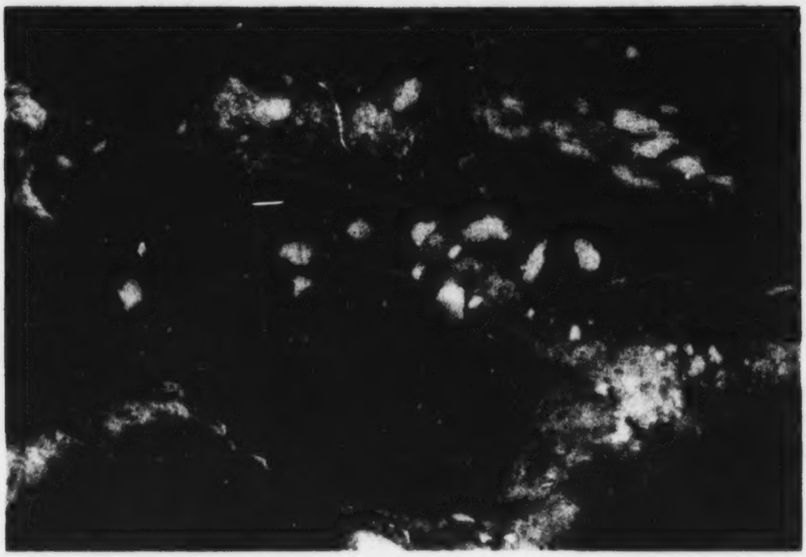

Figure 35. Close-up of pit A, looking northeast.

Pit B, separated from its northern neighbor by a 1.3-ft thick partition of undisturbed subsoil, was roughly circular with near vertical walls and a slightly concave base. The cavity was 4.4 - 4.9 ft across and 4.0 ft deep.

The pits were filled with a mottled mixture of light reddish brown (5YR 6/4) clay, dark brown (7.5YR 3/2) silty clay, brown (7.5YR 5/4) sand and gravel and yellowish red (5YR 4/6) to yellowish brown (10YR 5/6) ash containing broad lenses of yellowish red (5YR 4/8) ash and charcoal up to 0.45 ft thick, as well as those composed of wood chips and fragments, birch bark, fish remains and yellowish brown (10YR 5/6) ash up to 0.25 ft thick. Also encountered were burned and unburned bones, wads of mammal hair, feathers, charred timber remnants, chinking fragments, rocks and numerous artifacts (Table 2).

Pits A-B were doubtless created by the removal of the tenaceous clay subsoil for use in chinking building walls and roofs. After the required clay had been romoved, the resultant depressions were used for trash disposal. The partition between the two pits suggests that one of them was at least partially filled with rubbish before the other was dug.

Several of the ceramic and bottle sherds recovered from the pits crossmended with those from the main house. This, coupled with the concentration of artifacts in pits A-B, suggests that these features functioned as the principal trash receptacles for the English habitants of the site.

Borrow/Trash Pit C

A large pit adjoining a small stone feature (Fig. 36) was located 1.0 ft to the southwest of pits A-B, and approximately 6 ft to the north of the southern watch house (Fig. 26). The pit, circular in outline with sides that sloped in toward the slightly concave bottom, was about 8.0 ft in diameter and 3.7 ft deep. It contained a layer of charcoal-stained silty clay and light brown (7.5YR 6/4) ash with a lense of wood chips and branches at its base that overlay a deposit of dark brown (7.5YR 3/2) silty clay intermixed with sand, ash, charcoal and fish remains which rested on brown (7.5YR 5/4) sand and gravel containing infrequent pieces of charcoal and yellowish red (5YR 4/8) burned clay (Fig. 37).

Located at the northern edge of the pit, the stone feature had a roughly rectangular outline and measured 3.3 ft (north-south) by 2.9 ft (east-west) by 1.0 ft high. It was composed of two courses of unconsolidated igneous rocks. The centre of the lower course was empty, intimating that an upright (such as a fence post) may have rested therein. The upper course stones have slipped into the hole thereby sealing it.

Pit C was most likely formed by the removal of the clay

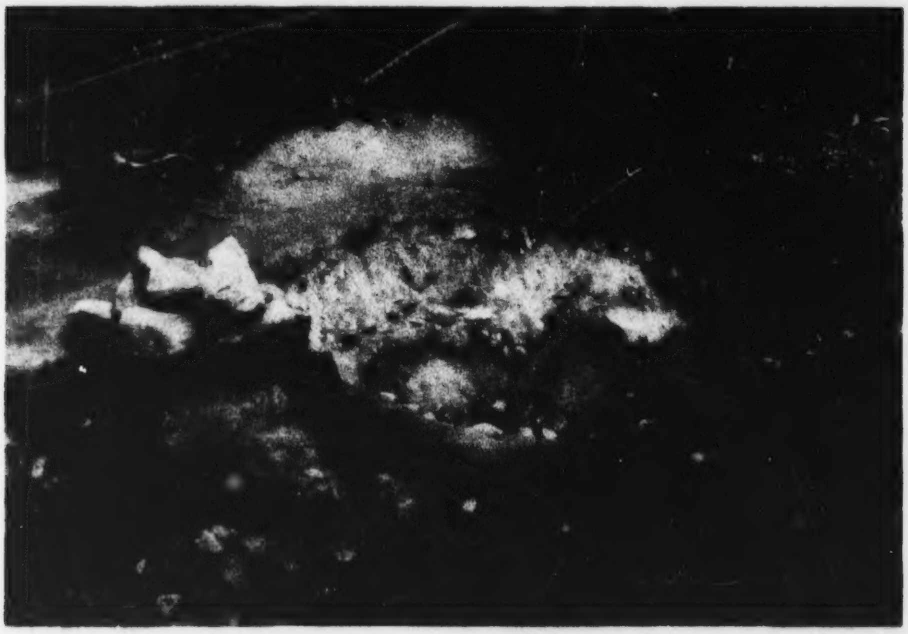

Figure 36. Borrow/trash pit C and associated stone feature, looking south.

subsoil for chinking purposes. Rejected soil (sand and gravel) was strewn to the south of it and underlay a portion of the southern watch house, revealing that pit C predates the North West Company building. The presence of some household rubbish in the hole revealed that it had been intermittently used as a trash receptacle.

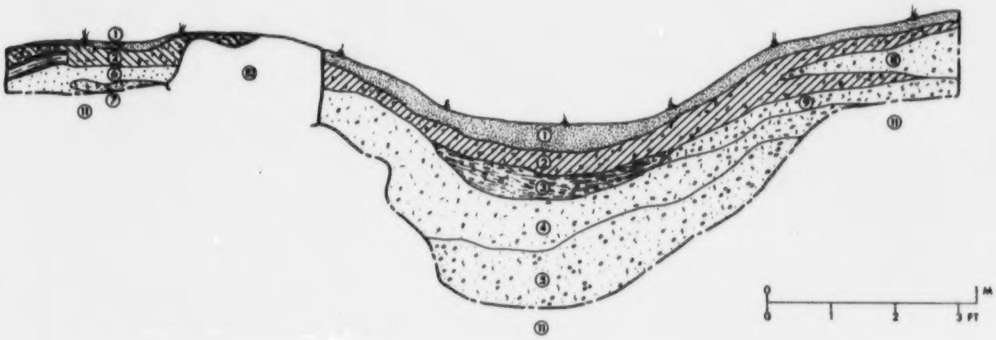

Figure 37. Northeast-southwest profile through the approximate centre of pit C, looking southeast. Legend: 1, decaying vegetal material; 2, charcoal stained silty clay and light brown ash; 3, wood chips and branches; 4, dark brown silty clay containing sand, ash, fish remains and charcoal; 5, brown sand and gravel containing infrequent charcoal and yellowish red burned clay fragments; 6, brown sand; 7, yellowish red burned clay; 8, brown sandy clay; 9, charcoal stained silty clay and yellowish red burned silty clay; 10, rock feature; 11, undisturbed reddish brown clay. (Drawing by S. Epps.)

Borrow/Trash Pit D

A large double pit was dug into the clay subsoil 9.4 ft to the northwest of pit C and approximately 16 ft to the southwest of the south corner of the main house (Fig. 6). The main cavity (Fig. 38) had an irregular outline, sloping sides, and a very uneven bottom. It was about 10 ft long (NW-SE), 8 ft wide (NE-SW) and up to 3 ft deep. The smaller one abutted the former's northeast edge. Oval in outline with sides that curved in toward a concave bottom, the depression measured 2.3 ft (north-south) by 3.2 ft (east-west) by 1.5 ft deep.

The upper portion of either concavity was filled with a mottled mixture of dark brown (7.5YR 3/2) silty clay, reddish brown (5YR 4/4) clay, charcoal, chinking fragments and

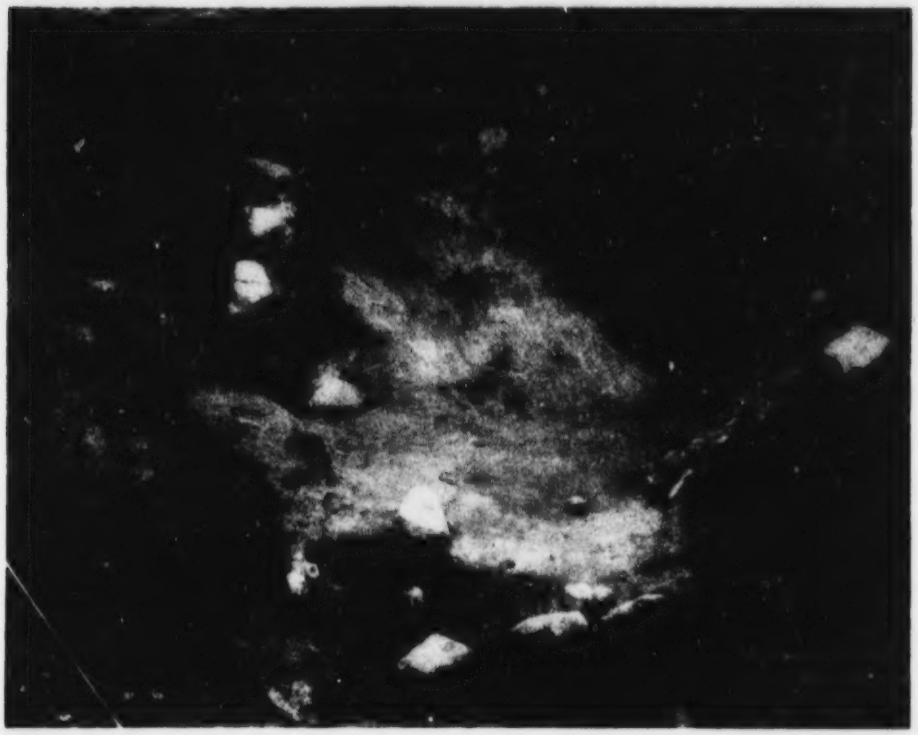

Figure 38. The main cavity of borrow/trash pit D during excavation, looking east. A portion of the minor concavity is visible in the upper centre.

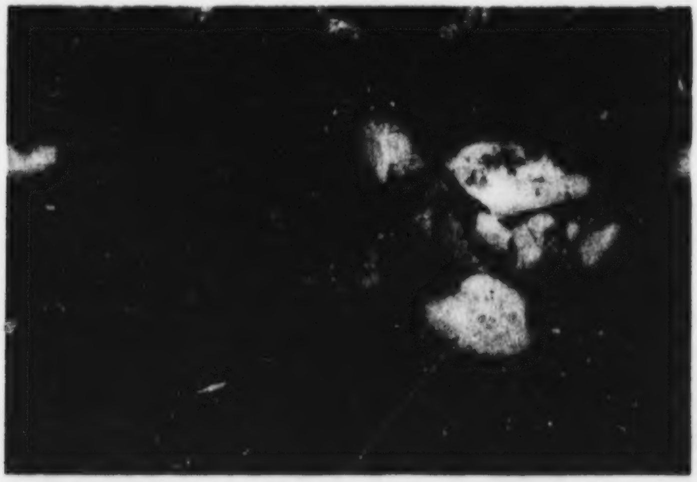

Figure 39. Basal fill in the southeastern end of pit D, looking northwest.

cobbles. The lower fill, up to 1.5 ft thick, consisted primarily of burned and fire-cracked stone (Fig. 39) intermixed with gray (5YR 5/1) ash, charcoal and brown (10YR 5/3) silty clay containing bones and a fair number of artifacts (Table 2).

The irregular configuration of pit D evinces its borrow origins, while the fill reveals that it was subsequently used for trash disposal by the English inhabitants.

Stone Pile - Garden Area

A large rock pile was uncovered 30 ft to the southwest of the fireplace in the southern watch house. Composed of quartzite boulders and large, angular chunks of gneiss (Fig. 40), the feature was about 6.5 ft in diameter and 1.6 ft high. It is believed to have been formed when the area to the south of the building complex was cleared so that a garden could be established there. Elsewhere the ground was either too low or steep and rocky for a garden plot.

Gardens were planted shortly before the end of each of the first three trading seasons so that there would be a supply of vegetables to supplement the mens' winter diet. The first one measured 15 by 17 yd, and was laid out early in May of 1803. Owing to the sterility of the ground and the cold

Figure 40. The stone pile in the garden area, looking north.

climate, as well as pilfering on the part of the Canadians, the plot yielded only one bushel of turnips and about ten gallons of potatoes. The next year's garden, cleared in mid-May, produced seven baskets of potatoes and three bushels of turnips (HBCA, B.39/a/2, fol. 47; B.39/a/3, fol. 5-7, 21; B.39/a/4, fol. 5).

During April and May of 1805, the garden was enclosed by a stockade composed of 7-ft long pointed posts attached to ribbands with treenails and set in a trench. A "door" provided access to the enclosure. Following the reappearance of the northern watch house adjacent to Fidler's window the following January, two ribbands of the stockade were taken down and placed in the snow at the northeastern end of the main house to keep the Canadians away from the building (HBCA, B.39/a/4, fol. 17-19; B.39/a/5a, fol. 11; B.39/a/5b, fol. 52).

ARTIFACT DESCRIPTIONS

The Nottingham House site produced an estimated 5806 objects, 91 per cent of which are glass beads and lead shot. However, while the other artifacts are numerically restricted, they are, nonetheless, fairly diversified. It is, therefore, possible to provide a fair degree of insight into the material culture of the inhabitants.

The artifacts are described in detail and are accompanied by explicative or interpretative comments in most cases. Artifact dimensions and volumes are presented in the metric system because of the ease of rendering fractions. However, their decimal values are also given when they are felt to be historically or culturally significant. Colours are designated using the Munsell colour notation system (Munsell Color Company 1976).

All glass items were tested for lead by exposing them to short wave ultraviolet light. Those containing lead fluoresced a pale ice blue (Elville 1951: 266). The presence of lead in a selected sample of the latter pieces was corroborated by X-ray diffraction analysis. Although the composition of many of the metal artifacts was determined using X-ray diffraction, it was neither possible nor feasible to test all of them. Consequently, generalized terms are used to describe those metals having an uncertain make-up: "yellow metal" denotes an unspecified copper alloy, while a "ferrous metal" may be either iron or steel.

The artifacts are assigned to six major functional categories: Personal Items, Domestic Items, Subsistence and Defence, Tools and Hardware, Business Items and Transportation. Objects that could not be identified, or whose function was not evident, were placed in a seventh, Miscellaneous, category.

Personal Items

Textiles

Several pieces of fabric were collected. Materials include wool, vegetal fibre, an unidentified fibre and a combination of flax and yellow metal (A. Douglas 1977: pers. com.).

Flax and Yellow Metal

An approximately 730-mm long by about 12-mm wide band

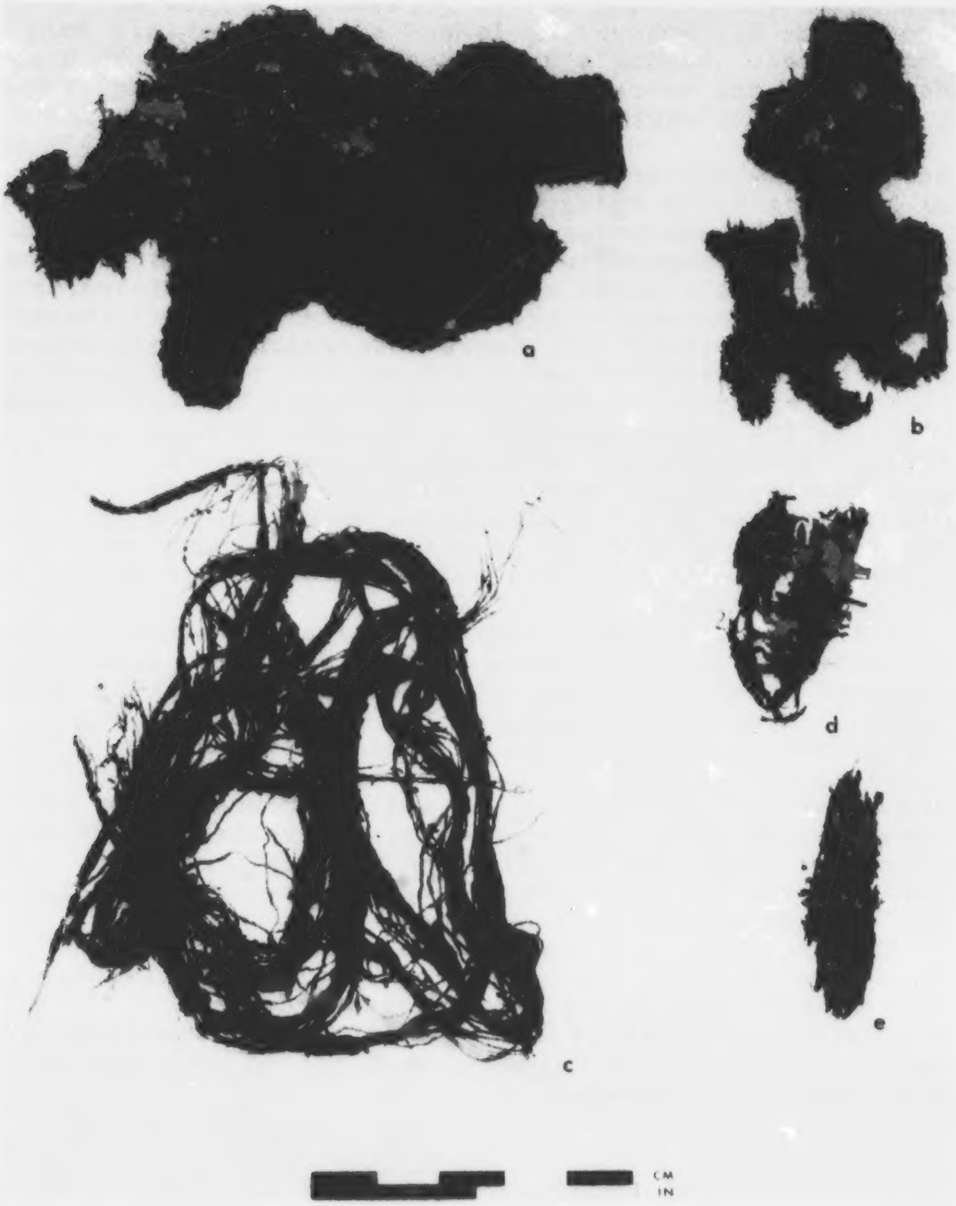

Figure 41. Textiles: a-b, dark blue wool fabric; c, band of interwoven flax and yellow metal strips; d-e, woven vegetal fibre. (Photo by R. Chan.)

(Fig. 41c) is composed of flax (linen) yarns interwoven with strips of yellow metal, probably brass, which are -.7 - 0.9 mm wide and about 0.1 mm thick. Although most of the strips have disintegrated leaving only the flax yarns, several very small areas remain relatively intact. These indicate that the textile was constructed using an irregular double plain or basket weave (Fig. 42a) in which a single weft element (a metal strip) is woven over and under two single, twisted warp yarns (Potter and Corbman 1967: 67-68). The weave produces a checkerboard pattern because the two warp yarns have approximately the same width as the metal strip. The thread count is 20 warp and 10 weft to the centimetre. The North West Company's Fort George in east-central Alberta produced this same type of material which may be the yellow "orrice lace" listed in the trading goods' inventories (Kidd 1970: 159).

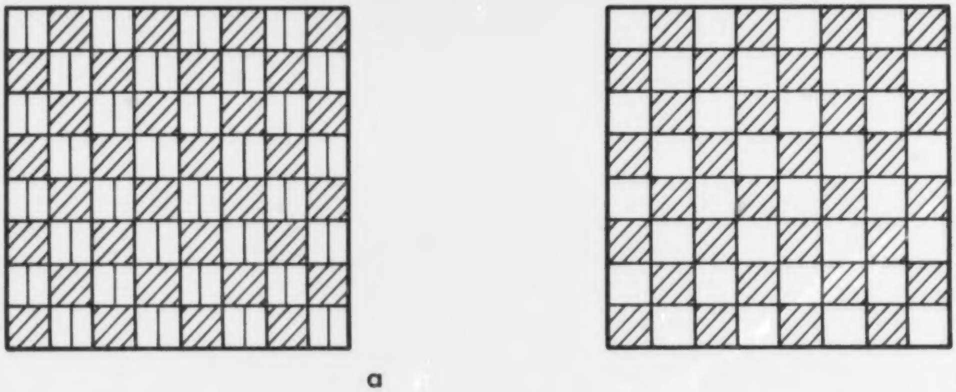

Figure 42. Textile weaves: a, irregular double plain or basket weave; b, regular single plain weave. (Drawing by S. Epps.)

Wool

There are seven pieces of woolen fabric (Fig. 41a-b), six of which are dark blue (5B 3/2). All of them have a plain weave (Fig. 42b) formed by the simple interlacing of warp and weft yarns (Potter and Corbman 1967: 66). The weave of the fabric is well balanced, with 10-12 warp and 10-15 weft threads to the centimetre.

Vegetal Fibre

Two examples (Fig. 41d-e) of woven vegetal fibre, possibly spruce root, were uncovered in pit B. The specimens are composed of flat strips of bast fibre interwoven in a plain, poorly balanced weave, with 5-7 warp and 9-11 weft elements per centimetre.

Unidentified Fibre

A very small (7 by 9mm) piece of finely woven fabric was found adhering to a piece of tinned sheet iron. The material exhibits a balanced plain weave with 60 warp and weft threads to the centimetre. It has a reddish purple (10RP 5/6) and appears to be the original hue.

Buttons

The Nottingham House button sample is composed of 55 specimens that can be segregated into 10 types of 28 varieties. Materials include brass (56%), pewter (33%) and bone (11%). The composition of the metal specimens was determined by Henry Unglik of the Conservation Division, Parks Canada (Tables 3 and 4). All of the buttons are circular.

Brass

There are 31 brass buttons making up six types of 21 varieties. Eighteen of the artifacts exhibit no plating,

Table 3. Brass Button Composition (Percentages of Elements Based on EDX Semi-Quantitative Analysis by Henry Unglik, Conservation Division, Parks Canada, Ottawa)

Type/Var.	Lab. No.	Copper	Zinc	Lead	Ag	As	Bi	Cd	Fe	Sb	Sn	Comments
A.1	77-3609	75-78	21-24	<1.0	X						X	
	77-3591	76-79	20-22	1-2	X							
	77-3603	79-81	18-21		X			X			X	
	77-3595	81-83	16-18	≤0.5	X						X	
	77-3585	86-90	8-12	≤2	X					X	X	
	77-3575	89-92	6-8	1-2	X				<0.5			
	77-3608	89-93	6-8	1-3	X		X		X	X	X	
A.2	77-3604	94-96	4-6									silvered
A.3	77-3590	95-97	3-5									silvered
A.4	77-3613	95-97	3-5									silvered
A.5	77-3578	74-77	22-24	1-2	X	X				X	X	
A.6	77-3617	91-93	6-8	≤0.5	X						X	
A.7	77-3577	92-94	5-7	≤0.5	X						X	gilded
A.8	77-3588	95-97	3-5		X						X	gilded
A.9	77-3571	93-95	3-4	1.0	X				<0.5		X	gilded
	77-3610	95-97	5-7	<0.5	X						X	gilded
B.1	77-3612	50-57	42-48	1-2	X						X	
	77-3614	61-63	37-39		X			X			X	
B.2	77-3620	71-81	13-15	6-8	X				X			tinned
	77-3602	73-75	24-26	<0.5	X				<0.5	X		tinned
B.3	77-3621	77-79	20-22	<0.5								tinned
C.1	77-3594	91-93	7-9		X						X	
D.1	77-3616	65-72	23-27	<1.0	X				X		4-6	
D.2	77-3583	87-92	1-3	2-4	X					X	5-6	
D.3	77-3607	79-82	3-4	4-16					<0.5	0.5		tinned
D.4	77-3597	75-80	13-15	6-9	X				<1.0			tinned
E.1	77-3589	64-66	33-35	≤0.5	X			X				
	77-3592	78-80	19-21	≤0.5	X			X		X		
E.2	77-3615	55-76	22-38	1-2	X				<0.5			
F.1	77-3598	75-82	5-8	12-16	X				≤0.5	X		

X = trace.

Table 4. Pewter Button Composition (Percentages of Elements Based on EDX Semi-Quantitative Analysis by Henry Unglik, Conservation Division, Parks Canada, Ottawa)

Type/Var.	Lab. No.	Tin	Lead	Copper	Antimony
A.1	78-2140	57-67	35-42	<1.0	1-2
A.3	77-3596	60-65	32-38	0.5	
B.1	77-3586	65-75	25-30	1-3	

while six are tinned, four are gilded and three are silvered. The metallurgical compositon of the buttons varies considerably. The unplated specimens are composed of 50-97 per cent (78.5% mean) copper, 1-48 per cent (18.9% mean) zinc, 0-16 per cent (1.7% mean) lead and 0-6 per cent (less than 0.5% mean) tin, with traces of several other elements (Table 3). The gold- and silver-plated specimens have, on the average, a significantly higher copper content (92-97%; 95% mean), and are relatively lower in zinc (3-7%; 4.4% mean), lead (0-1%; 0.75% mean) and tin (traces). The tinned buttons are notably lower in copper (71-82%; 77.2% mean) and relatively higher in zinc (3-26%; 15.5% mean) and lead (ca. 0.5-16%; 6.1% mean). Tin, antimony and silver are present in trace amounts.

Type A. One-piece buttons composed of a stamped disc with a copper or, less frequently, brass wire alpha shank brazed to the back. There are no marks resulting from manufacture. This type is equivalent to Stanley South's (1964: 120-21) type 18 and Stanley J. Olsen's (1963: 552) type G. Nine varieties are represented.

Variety 1. Plain; unplated; 7 specimens (Fig. 43a). This variety has a plain, flat to very slightly convex face and a flat to very slightly concave back. The shanks of all but one specimen are intact. One of them has a piece of cord in the eye. The discs are 14.4 - 24.0 mm in diameter.

Variety 2. Plain; silvered; 1 specimen (Fig. 43b). The button is 13.1 mm across and has a flat face and back. The intact copper shank has a piece of cord attached to it.

Variety 3. Engraved front, plain back; silvered; 1 specimen (Fig. 43c). The flat face of the button displays the incised script letters PF, undoubtedly the initials of Peter Fidler. The back of the 14.3-mm broad disc is flat. The copper shank is intact.

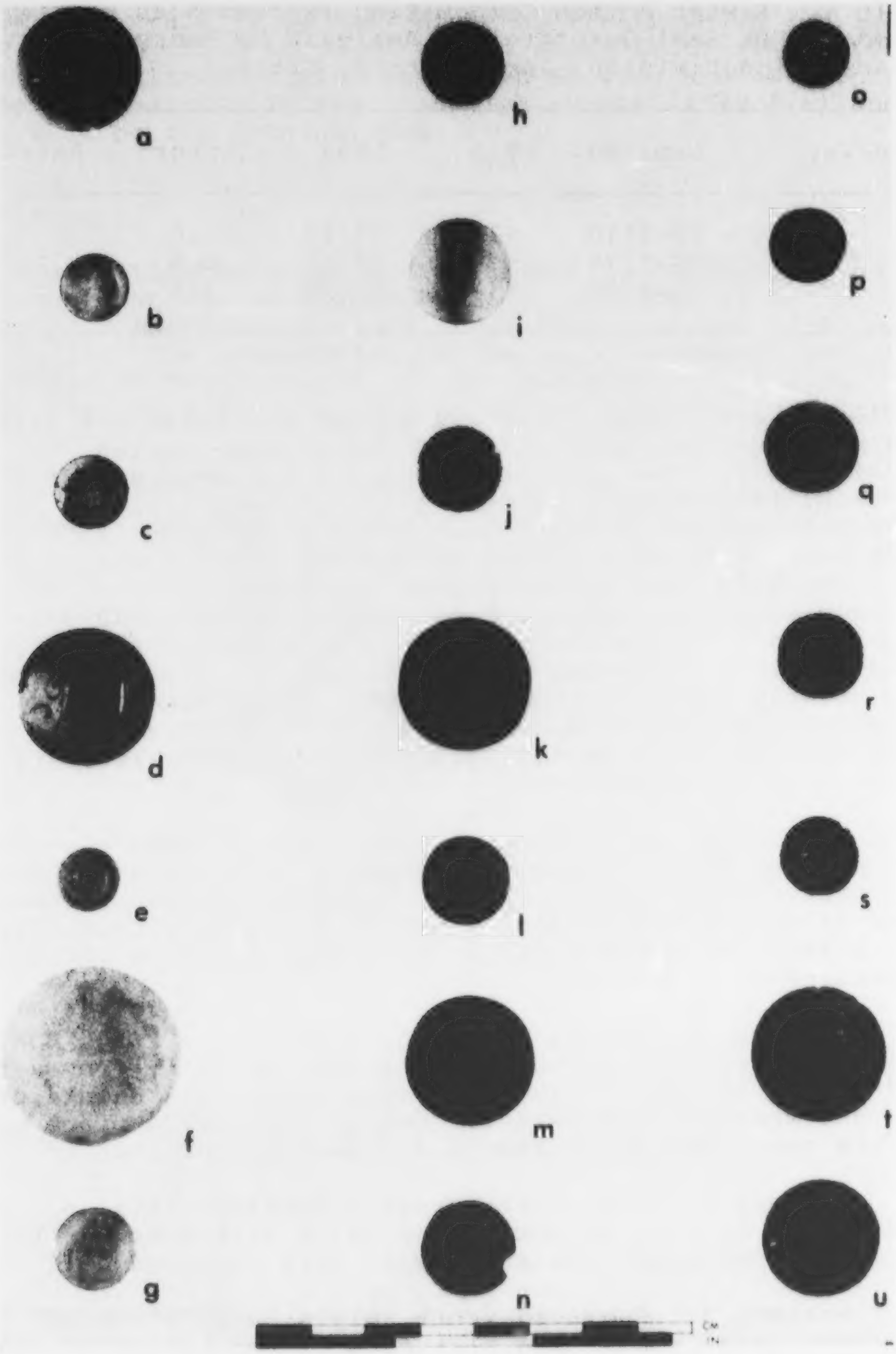
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Figure 43. Brass buttons: a-i, type A; j-m, type B; n, type C; o-r, type D; s-t, type E; u, type F. (Photo by R. Chan.)

Variety 4. Engraved front, marked back; silvered; 1 specimen (Fig. 43d). Essentially the same as variety 3, except that the diameter is 26.1 mm, and MH&E and PLATED are stamped in relief on the back. The intact shank is made of copper.

Variety 5. Decorated (pastoral scene); unplated; 1 specimen (Fig. 43e). The flat front of this 12.2-mm diameter button is embellished with a stylized, bas-relief depiction of a beehive on a stand, two birds, and a slender, leafless tree on a round, 6.8-mm wide, sunken, centric panel. The back is also flat but has an uneven, lumpy surface with a slightly elevated, round area in its centre. The intact copper shank is affixed to the protuberance which is about the same size as the depression on the face.

Variety 6. Decorated (sunburst); unplated; 1 specimen (Fig. 43f). The face and back are flat and covered with distinct file marks. The front is decorated with a stamped sunburst design, possibly a military device, which has been practically obliterated by filing. In addition, roughly one half of the disc's perimeter has been filed to a sharp edge, possibly so that the button could be used as a knife or scraper. The brass shank remains intact. The specimen has a maximum breadth of 33.5 mm.

Variety 7. Decorated (Hudson's Bay Company insignia - in relief); gilded; 1 specimen (Fig. 43g). This variety is 15.3 mm in diameter. Its slightly convex face is adorned with the stamped, raised insignia of the Hudson's Bay Company: a fox seated on a cap of maintenance situated at the top of a buckled, beaded garter bearing the motto PRO PELLE CUTEM ("we risk our skins to get furs;" Rich 1958: 13); the garter encircles the ornate, entwined letters HBC. The back is concave and marked ".S.FIRMIN.STRAND." within a raised centric circle. The copper shank is intact.

Variety 8. Decorated (Hudson's Bay Company insignia - in intaglio); gilded; 1 specimen (Fig. 43h). This button is about the same size (15.6 mm diameter) as the previous one. The frontal design is essentially the same except that it is impressed rather than raised. The back, which is only slightly concave, has the raised, stamped inscription "*S.FIRMIN*STRAND*" situated about an elevated circle that enrings the intact copper shank.

Variety 9. Plain, curved face, marked back; gilded; 2 specimens (Fig. 43i). The faces and backs of these buttons are flat perpendicular to the plane of either shank, while the faces are convex and the backs are concave parallel to the same plane. The quality marks "GILT.*.GILT.*.GILT.*." appear in relief in a narrow depressed band that encircles either copper shank. One of the latter is whole while the other has broken off at the base. The discs measure 20.1 - 20.5 mm by 19.4 - 19.5 mm.

Type B. Cast one-piece buttons with brass wire alpha shanks fixed in well-defined, truncated, cone-shaped bosses during the casting process. There are no mould marks, and the backs have been spun and tooled to remove their pebbled surfaces. The bosses have been similarly treated in several cases. A casting spur is, nonetheless, present at the top of most of them. The faces of all the buttons are plain. This type corresponds to type 7 in South (1964: 117) and type D in Olsen (1963: 552). There are four varieties.

Variety 1. Back and boss spun; unplated; 2 specimens (Fig. 43j). These buttons have plain, flat faces and flat to slightly convex backs. The bosses have small casting spurs adjacent to the shanks. One of the latter has been pulled from the boss, while the other has been partially detached. The buttons are 16.3 - 24.3 mm in diameter.

Variety 2. Back and boss spun; tinned; 2 specimens (Fig. 43k-l). The faces are plain and flat, while the backs are flat to distinctly convex. A casting spur is present on one boss. Both shanks are whole. The discs measure 16.9 - 25.3 mm across.

Variety 3. Spun back; unaltered boss; tinned; 1 specimen (Fig. 43m). Both the face and the back of this 24.2 mm diameter button are flat. The boss has a pebbled surface and a casting spur. The shank is intact.

Variety 4. Spun back; indeterminate boss; tinned; 1 specimen. This is a residual variety consisting of a fragment of the disc of either a variety 2 or a variety 3 button. Both surfaces are flat. The disc is estimated to have been about 26.8 mm across.

Type C. One-piece, mould cast button with a yellow metal wire alpha shank embedded in a well-defined, truncated, cone-shaped boss. A mould mark extends across the back and onto the boss. This type is analogous to South's (1964: 117) type 8 and Olsen's (1963: 552) type C. There is one variety.

Variety 1. Decorated (Hudson's Bay Company arms); unplated; 1 specimen (Fig. 43n). The button is 17.2 mm in diameter and has a flat, unmarked back with an entire shank. The flat face has a fairly broad rim, a portion of which displays four rings. A hatched cross divides the interior into quadrants, each of which contains the likeness of what seems to be a plump, diagonally situated beaver. This design is probably a slightly altered representation of the shield in the coat of arms of the Hudson's Bay Company, viz. "argent, a cross gules between four beavers passant proper" (Parker 1970: 50). Other buttons of this variety have been dug up at Buckingham House (Hudson's Bay Company) and Fort George (North West Company) which operated practically side-by-side on the North Saskatchewan River from 1792 to 1800 (Kidd 1970: 160; Nicks 1969: 222).

Type D. Cast, one-piece buttons with a wire alpha shank set in a slight, irregular rise in the centre of the back. No mould marks are visible. The backs of three of the four recorded varieties have been spun and tooled to produce a smooth surface. There are no equivalents to this type in South (1964) or Olsen (1963).

Variety 1. Plain; unaltered back; unplated; 1 specimen (Fig. 43o). The face is flat and smooth, while the pebbled back is convex around the central rise which has a casting spur on it. The shank is missing. The button is 12.7 mm in diameter.

Variety 2. Plain; spun back; unplated; 1 specimen (Fig. 43p). Both sides of this 14.6-mm diameter button are flat. The surface of the rise is irregular and burred. The specimen has an intact yellow metal shank.

Variety 3. Plain; spun back; tinned; 1 specimen (Fig. 43q). This 17.7-mm wide button has a flat face and a slightly concave back. The concentric tool marks that cover the back extend onto the rise containing the remains of a ferrous metal shank.

Variety 4. Decorated; spun back; tinned; 1 specimen (Fig. 43r). The face of the button is flat. Its perimeter is ornamented with a circular band composed of five concentric, wavy lines, and a circle of tiny diagonals. These elements have been stamped into the metal. The back is slightly concave around the uneven, spurred rise. One foot of the brass shank has been pulled out of place. The specimen has a diameter of 16.4 mm.

Type E. Cast one-piece buttons with integrant wedge-shaped shanks that have drilled eyes. They correspond to Olsen's (1963: 552) type A buttons. There are two varieties, neither of which exhibit marks resulting from manufacture.

Variety 1. Plain; 2 specimens (Fig. 43s). The buttons have plain, very slightly convex faces and very slightly concave backs. The shank of one specimen has not been drilled. The discs are 15.1 - 15.2 mm in diameter.

Variety 2. Decorated; 1 specimen (Fig. 43t). This variety has a slightly convex face embellished with several design elements, among them a raised, centric ring encircled by five, raised, crown-like motifs. These elements have flanges that slope inward, intimating that they once enclosed inlays of some substance that has since disappeared. The area enclosed by the ring is checkered, while the rest of the face exhibits several embossed floral motifs. The edge is beaded. The back of the 25.4-mm diameter button is slightly concave. A similar specimen believed to have had blue enamel inlays was excavated at the site of Sturgeon Fort, a proto-North West Company post that operated in central Saskatchewan from 1776 to 1780 (Barka and Barka 1976: 68).

Type F. Two-piece button with a cast back. An omegoid brass wire shank was set in the back during casting and its flattened feet protrude from the surface opposite the eye. The front is missing but probably consisted of a domed piece of yellow metal that was soldered to the back (South 1964: 116, type 6). One variety was recorded.

Variety 1. Incomplete; concavo-convex back; 1 specimen (Fig. 43u). The front of the specimen is concave and rough except for a flat, ground rim. The back is convex and has been smoothed by spinning. The intact shank is attached to a piece of cloth. The diameter of the artifact is 21.8 mm.

Pewter

Eighteen pewter buttons of two types and five varieties were enumerated. They are composed of 60-75 per cent tin, 25-42 per cent lead, 0.5-3 per cent copper and 0-2 per cent antimony (Table 4).

Type A. Cast one-piece buttons with omegoid ferrous metal wire shanks set in low, domed bosses which are well defined at the base. Mould marks are present on all of the bosses and some of the backs. This type is equivalent to South's (1964: 117) type 8 and Olsen's (1963: 552) type C. Four varieties are represented.

Variety 1. Decorated (Hudson's Bay Company insignia); large size; 8 specimens (Fig. 44a). These buttons have slightly convex faces that display the embossed insignia of the Hudson's Bay Company as described above for the brass, type A, variety 7 buttons. Their backs are slightly concave and exhibit remnants of the raised inscription S FIRMIN STRAND. A broad, mould marked ridge is present on each boss. There are no marks on the back itself. Most of the shanks have rusted away. The specimens are 21.0 - 21.6 mm in diameter, with a mean of 21.3 mm and clearly represent a single size category. They may be analogous to the pewter

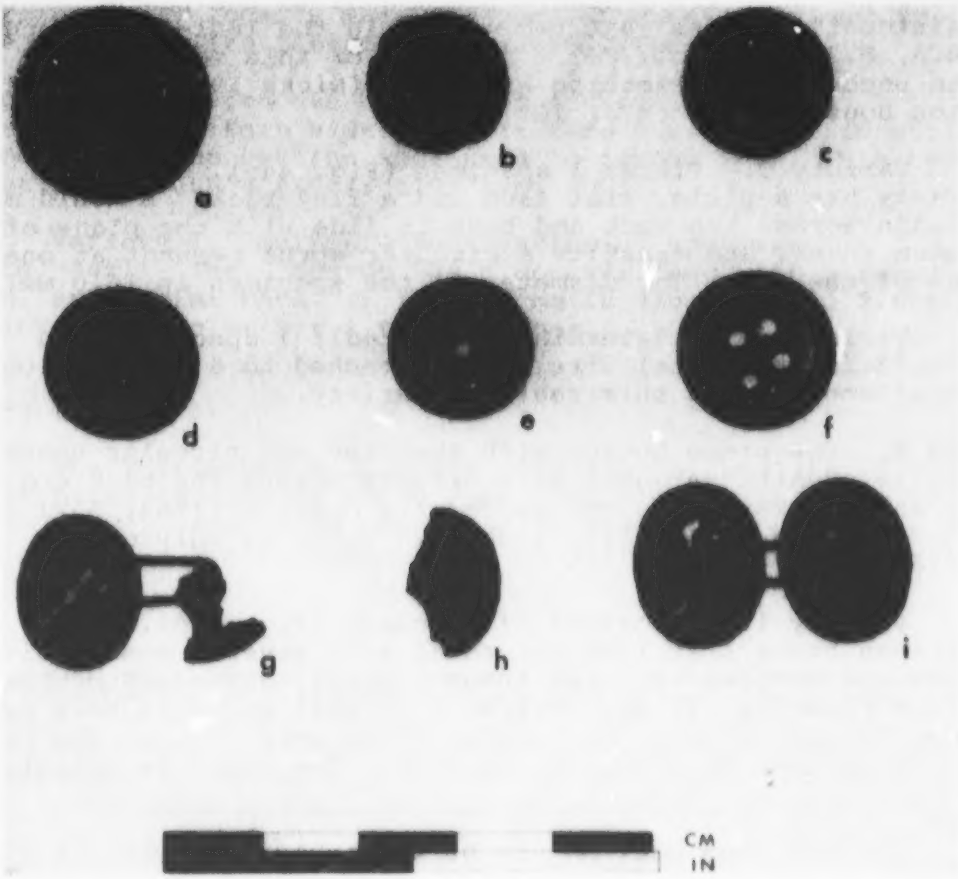

Figure 44. Buttons and cuff links: a-c, pewter buttons, type A; d, pewter button, type B; e, bone button, type A; f, bone button, type B; g-h, decorated brass cuff links; i, plain brass cuff link. (Photo by R. Chan.)

"coat" buttons listed in the Nottingham House journal for 1801-1803 (HBCA, B.39/a/2, fol. 84). Other Hudson's Bay Company sites that have produced buttons of this variety include Acton House (1799-1821; Noble 1973: 109), Buckingham House (1792-1800) and Edmonton House III (1810-13; Nicks 1969: 172, 224).

Variety 2. Decorated (Hudson's Bay Company insignia), small size; 7 specimens (Fig. 44b). These buttons have the same facial design as the previous variety but are slightly different in form: their faces are very slightly convex, while their backs are flat and unmarked. They are also smaller, 14.4 - 15.4 mm across, with a mean and mode of 15.0 mm, and undoubtedly represent another distinct size category. They are probably tantamount to the pewter "waistcoat" buttons that are listed in the 1801-1803 journal (HBCA, B.39/a/2, fol. 84). Buttons of this variety have also been uncovered at Edmonton House III (Nicks 1969: 172) and Acton House (Noble 1973: 109).

Variety 3. Plain; 1 specimen (Fig. 44c). This variety has a plain, flat face and a flat back. A mould mark extends across the back and boss in line with the plane of the broken shank, and exhibits a circular sprue remnant at one edge of the boss. The diameter of the specimen is 16.0 mm.

Variety 4. Indeterminate (melted); 1 specimen. An omegoid ferrous metal wire shank attached to a melted blob of pewter constitutes this residual variety.

Type B. One-piece button with the disc and circular shank cast as a unit. A mould mark extends across the back and over the shank. This type corresponds to Olsen's (1963: 552) type E and South's (1964: 118) type 11. There is only one variety.

Variety 1. Decorated; 1 specimen (Fig. 44d). The specimen has a flat face decorated with several concentric flats and grooves situated about a small, depressed centre. Before cleaning, it was covered with what seems to have been a brown lacquer enamel (A. Douglas 1976: pers. com.). The back of the 16.0-mm broad button is flat. The shank is intact.

Bone

The six bone buttons are of two types, each with a single variety.

Type A. Flat bone discs with a single central perforation. One or both sides have been lathe turned and tooled to smooth them. This type is tantamount to type 15 in South (1964: 119).

Variety 1. Single perforation; 5 specimens (Fig. 44e). Three of the specimens have been spun on both sides, while only one side has been so treated on the rest (the opposite face is covered with fine, parallel cut marks). The discs are 10.2 - 15.3 mm (12.3 mm mean) in diameter and 1.3 - 2.0 mm (1.6 mm mean) thick. Their perforations have a diameter of 1.2 - 1.9 mm (1.6 mm mean).

Stone (1974: 59, 61) believes that the discs may be button back blanks manufactured on site to serve as replacements for the broken or worn-out bone backs of composite buttons. At Michilimackinac, such buttons had a convex, copper or brass front, a clay filler element and a brass omega shank inserted in the hole in the back (Stone 1974: 57). Although South (1964: 119) concurs that the discs were probably locally made, he suggests that they may have been covered with fabric and had string shanks.

Type B. Plano-concave discs with four central perforations. Both sides exhibit numerous concentric striae produced by the cutting tool used to smooth them. This type is most like South's (1964: 119) type 20.

Variety 1. Multiple perforation; 1 specimen (Fig. 44f). The button has a concave face with a rounded rim, and a flat back. It is 17.0 mm in diameter and 2.6 mm thick. The holes are 1.6 mm across.

Cuff Links

The Nottingham House cuff link sample consists of three cast brass (H. Unglik 1978: pers. com.; Table 5 - Nos. 77-3579 and 77-3581) specimens uncovered in Fidler's "cabbin" in the main house. Two categories can be differentiated: decorated and plain.

Table 5. Metallurgical Composition of Selected Brass Artifacts (Percentages of Elements Based on EDX Semi-Quantitative Analysis by Henry Unglik, Conservation Division, Parks Canada, Ottawa)

Artifact Type	Lab. No.	Copper	Zinc	Lead	Ag	As	Fe	Sb	Sn
Decorated cuff link	77-3579	96-98	2-4		X				
Plain cuff link	77-3581	74-84	15-25	≤0.5	X				
Tinkling cone	77-3600C	68-72	27-30	1-3					
Finger band	77-3587	50-56	42-46	2-4	X				
Intaglio ring	77-3599	64-67	31-33	<0.5	X	X	<0.5		1-2
Small kettle	78-2144	79-83	16-[illegible]	<1.0	X				X
Large kettle	78-2141	84-88	9-	3-4	X				X
Kettle rim lug	77-3618	72-76	24-28		X				
Table knife handle A	77-3619A	75-85	10-13	3-6	X				3-6
Table knife handle B	77-3619B	65-75	14-18	3-6	X				7-12
Furniture lock	77-3593	69-73	24-27	2-3	X		<0.5		
Trigger plate	77-3582	87-90	9-11	1-2					
Trigger guard	77-3570	89-92	4-5	3-5	X		<0.5	X	0.5
Butt plate	77-3601	72-75	22-24	2-3	X			X	<1.0
Ramrod thimble A	78-2143	85-87	12-14	1.0	X			X	X
Ramrod thimble B	78-2147	95-98	2-5						
Wire loop	77-3605	58-68	10-12	20-[illegible]*			<1.0		0.5
Wire fragment A	77-3611	79-82	12-13	5-7			<1.0		
Wire fragment B	77-3606B	93-98	5-7	<0.5					
Bell	77-3572	78-88	1-3	1-3	X		<0.5	X	10-15

X = trace.
* = percentage skewed by the presence of solder.

Decorated

Two cuff links, one fragmentary and one complete, fall into this category. The complete specimen (Fig. 44g) is composed of two oval buttons connected by an oblong link made of 0.8-mm diameter brass wire. The buttons, 16.5 by 12.7 - 13.0 mm, have flat faces and very slightly concave backs with integral, wedge-shaped shanks that have drilled eyes. There are no marks resulting from manufacture. The face of either button displays an impressed anchor with entwined cable. The body of the anchor is hatched, and the stock (crosspiece) slopes down from left to right.

The other specimen (Fig. 44h) is represented by a single button practically identical to those of the intact cuff link. The only notable difference is that the anchor has a stock that tilts down from right to left

Plain

The solitary plain cuff link (Fig. 44i) has oval buttons that are 17.3 - 17.6 mm long and 13.7 - 13.8 mm wide. They have flat, undecorated faces and concave backs with flat, raised rims. The wedge-shaped shanks are integral with the backs and have drilled eyes. No marks resulting from manufacture are evident. The buttons are linked together with an oblong loop of 0.8-mm diameter brass wire.

Clothing Buckle

The buckle, composed of a rectangular, cast yellow metal frame with a double-pronged central bar (Fig. 45a), is 21.3 mm long, 14.7 mm wide and up to 3.2 mm thick. The front of the artifact is slightly convex parallel to the short axis of the frame, while the back is concave on either side of the bar. The ends and sides of the frame are 1.5 - 1.6 mm wide, and have rounded fronts and squared backs. The 1.7 - 2.0-mm diameter central bar is irregular-round in section and pivots on a ferrous metal pin. With the exception of the front of the frame and portions of the bar, all surfaces exhibit file marks resulting from manufacture.

Buckles of the aforementioned size and type may have been used to close the leg openings and rear vents of knee breeches or to fasten stocks (neckcloths) at the back of the neck. Similar buckles have been recovered from the Pacific Fur Company's Fort Okanogan (1811-ca.1831), as well as a coeval Indian grave located nearby (Grabert 1968: 43).

Footwear

What appears to be a shoe or moccasin sole remnant consists of a 35- by 26- by 3-mm piece of leather with a curved, cut edge along which is situated a series of small nail or awl holes set 6.2 - 7.3 mm apart (Fig. 45b). No chromium tanning agents were detected in the fragment, implying that the leather was prepared using only organic materials (A. Douglas 1978: pers. com.).

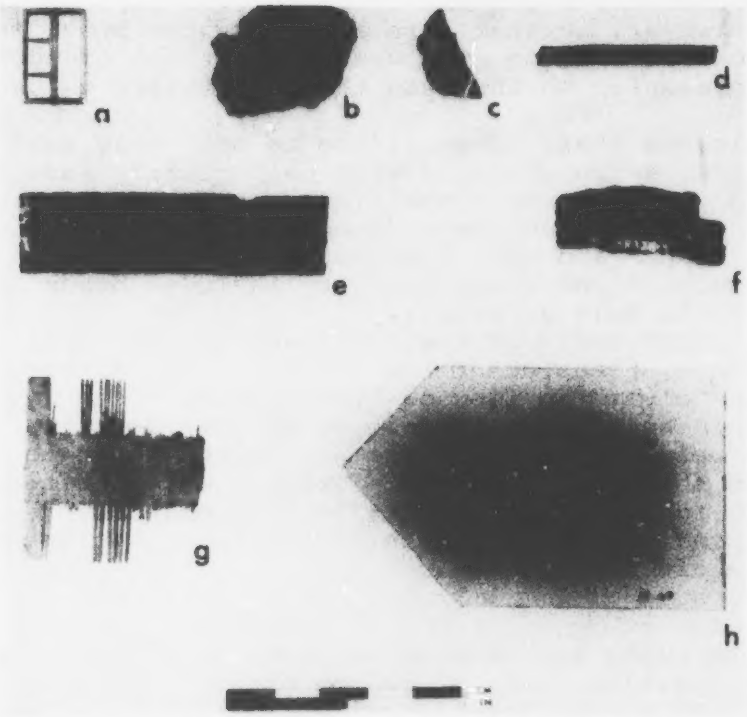

Figure 45. Personal items: a, clothing buckle; b, footwear fragment; c, steatite tobacco pipe fragment; d, burning glass retaining ring from a tobacco box; e-f, tinned iron box remnants; g, bone comb; h, rectangular mirror remnant. (Photo by R. Chan.)

Glass Beads

The site produced 3610 glass beads representing 34 types. These are classified using the system developed by Kenneth and Martha Kidd (1970) to facilitate inter-site comparisons of bead collections, and their identifying code precedes the detailed description of each bead type. Bead types in the collection that do not appear in the Kidds' lists are marked by an asterisk (*) since they do not, as yet, have type numbers.

The colour, size and shape notations used herein correspond to those employed by the Kidds. Colours are designated using the names and codes in the *Color Harmony Manual* (Container Corporation of America 1958). The equivalent colour code in the Munsell colour notation system (Munsell Color Company 1976) is also provided for the benefit of those who may not be familiar with the manual.

The size categories used refer to bead diameter and have the following numerical values: very small, under 2 mm; small, 2 - 4 mm; medium, 4 - 6 mm; large, 6 - 10 mm; very large, over 10 mm. However, in that this sizing system provides only a minimum of information, the exact size range of each bead type is also presented to increase the comparative value of this report.

While the shape nomenclature is basically self-explanatory, a few comments will help clarify some of the terms used. All beads classified as tubular have lengths that are greater than their diameters. Circular specimens are ring shaped and have diameters equal to or greater than their lengths. The round category includes beads that are spheroidal as well as oblate.

The diaphaneity of the specimens is described using the terms opaque, translucent and transparent. Although the Kidds use "clear" in lieu of "transparent," the latter term is used herein because it is felt to be more descriptive. Simply defined, beads that are opaque are impenetrable to light except on the thinnest edges. Translucent specimens transmit light, yet diffuse it so that objects viewed through them are indistinct. Objects viewed through transparent beads are clearly visible.

Drawn Beads

These beads are made of sections of glass tubing drawn out from a hollow globe of molten glass. The ends of the beads may be rough (unfinished) or rounded as a result of subsequent heating and agitation in a large metal drum or pan.

Drawn beads make up 94 per cent of the bead collection and are represented by 23 types.

Ia4. Tubular; small; translucent, oyster white (b; N 8/0); 1 specimen (Fig. 46a). The ends of the bead are unfinished.

Diameter	Length
3.3 mm	13.4 mm

Ia19. Tubular; small and medium; transparent, bright navy (13 pg; 7.5PB 2/7); 83 specimens (Fig. 46b). This bead type grades imperceptibly into its circular counterpart (type IIa56). Consequently, the two types were separated arbitrarily using the criterion that tubular beads have a length that is greater than their diameter. Specimens with a diameter equal to or greater than their length were classed as circular.

The ends of the beads range from practically unaltered breaks to well rounded. Several specimens are slightly bent.

Diameter	Length
2.7 - 5.9 mm	3.6 - 13.7 mm

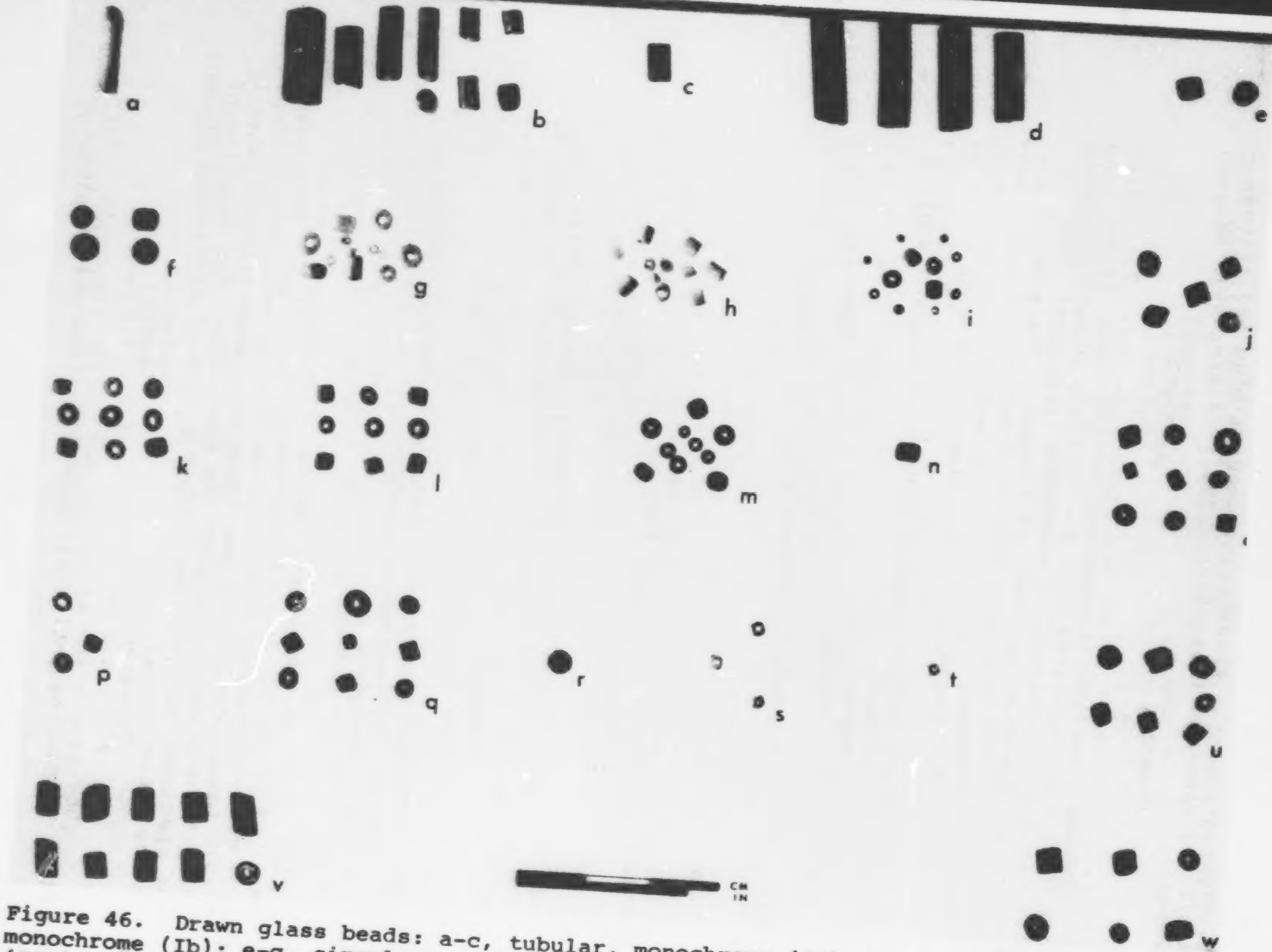

Figure 46. Drawn glass beads: a-c, tubular, monochrome (Ia); d, tubular, decorated monochrome (Ib); e-q, circular, monochrome (IIa); r, round, decorated monochrome (IIb); s-t, circular, decorated monochrome (IIb); u, circular-faceted, monochrome (IIf); v, tubular, polychrome (IIIa); w, circular, polychrome (IVa). (Photo by R. Chan.)

Ia*. Tubular; small; translucent, medium blue (13 1/2 ng; 5PB 3/6); 1 specimen (Fig. 46c). The ends are slightly rounded.

Diameter	Length
3.1 mm	5.6 mm

Ib*. Tubular; medium; transparent, bright navy (13 pg; 7.5PB 2/7) body decorated with 9 - 13 thin, straight, opaque, white (a; N 9/0) stripes; 28 specimens (Fig. 46d). The majority of the specimens have 12 stripes. The ends of the beads are slightly rounded. Several beads are slightly bent.

Diameter	Length
4.0 - 5.1 mm	11.8 - 21.5 mm

IIa2. Circular; small; opaque, redwood (6 ne; 10R 4/8); 5 specimens (Fig. 46e).

Diameter	Length
3.2 - 4.0 mm	2.3 - 3.3 mm

IIa7. Circular; small; opaque, black (p; N 1/10); 7 specimens (Fig. 46f).

Diameter	Length
3.1 - 4.0 mm	2.2 - 3.0 mm

IIa12. Circular; very small to medium; translucent, oyster white (b; N 8/0); 737 specimens (Fig. 46g).

Diameter	Length
1.1 - 4.5 mm	0.9 - 4.5 mm

IIa14. Circular; very small and small; opaque, white (a; N 9/0); 875 specimens (Fig. 46h). A number of the beads have a slight bluish tinge.

Diameter	Length
1.3 - 4.0 mm	0.9 - 3.7 mm

IIa47. Circular; very small and small; opaque, shadow blue (14 ie; 2.5PB 5/4); 29 specimens (Fig. 46i).

Diameter	Length
1.2 - 2.9 mm	1.0 - 2.6 mm

IIa56. Circular; small and medium; transparent, bright navy (13 pg; 7.5PB 2/7; 18 specimens (Fig. 46j). This bead type grades imperceptibly into its tubular counterpart (type Ia19). Consequently, the two types were separated arbitrarily using the criterion outlined for type Ia19. The majority of the specimens are pale because of a lack of sufficient pigment in the glass.

Diameter	Length
2.7 - 4.2 mm	1.9 - 3.8 mm

IIa*. Circular; small; transparent, light gold (2 ic;

2.5Y 7/8); 25 specimens (Fig. 46k). All of the beads are covered with a thin, iridescent patina.

Diameter	Length
2.6 - 3.5 mm	1.7 - 3.2 mm

IIa*. Circular; very small and small; translucent, light gold (2 ic; 2.5Y 7/8); 92 specimens (Fig. 46l). Numerous beads exhibit a chalky patina.

Diameter	Length
1.0 - 3.7 mm	0.8 - 3.0 mm

IIa*. Circular; very small and small; transparent, ruby (8 pc; 2.5R 3/10); 40 specimens (Fig. 46m). The glass of most specimens is patinated and decrepit.

Diameter	Length
1.9 - 3.5 mm	1.1 - 3.7 mm

IIa*. Circular; small; translucent, bright navy (13 pg; 7.5PB 2/7); 1 specimen (Fig. 46n).

Diameter	Length
3.4 mm	2.8 mm

IIa*. Circular; very small to medium; transparent, medium turquoise blue (17 le; 2.5B 5/5); 773 specimens (Fig. 46o). The glass contains numerous bubbles which make the beads appear almost translucent in a great number of cases.

Diameter	Length
1.3 - 4.4 mm	0.9 - 3.7 mm

IIa*. Circular; small; transparent, bright green (22 nc; 2.5G 5/10); 3 specimens (Fig. 46p). All of the beads have eroded surfaces.

Diameter	Length
2.6 - 2.8 mm	1.9 - 2.4 mm

IIa*. Circular; very small to medium; translucent, dark palm green (23 ni; 10GY 4/4); 185 specimens (Fig. 46q). The beads contain abundant linear bubbles frequently causing them to appear almost opaque. Numerous beads are coated with a thick, white patina.

Diameter	Length
1.2 - 4.1 mm	1.0 - 3.3 mm

IIb12. Round; small; opaque, black (p; N 1/0) body decorated with four straight, opaque, white (a; N 9/0) stripes; 1 specimen (Fig. 46r).

Diameter	Length
3.5 mm	2.8 mm

IIb*. Circular; small; opaque, white (a; N 9/0) body decorated with two transparent, light cherry rose (7 ga; 5R

7/8) and two opaque, bright dutch blue (13 la; 7.5PB 4/11) straight stripes; 3 specimens (Fig. 46s).

Diameter	Length
2.1 - 2.3 mm	1.4 - 1.7 mm

IIb*. Circular; small; opaque, white (a; N 9/0) body decorated with two transparent, light cherry rose (7 ga; 5R 7/8) and two transparent, bright mint green (22 ia; 2.5G 7/8) straight stripes; 1 specimen (Fig. 46t).

Diameter	Length
2.0 mm	1.9 mm

IIf*. Circular-faceted; small; transparent, rose wine (8 le; 10RP 4/6); 18 specimens (Fig. 46u). Each bead has from three to eight irregular, randomly applied, cut facets. Specimens with four and eight facets predominate.

Diameter	Length
2.7 - 3.6 mm	1.9 - 3.6 mm

(Note: The IIf category is a previously unrecorded one consisting of Class II beads whose surfaces have been modified by the application of ground facets.)

IIIa3. Tubular; small and medium; opaque, redwood (6 ne; 10R 4/8) outer layer; transparent, apple green (23 ic; 10GY 6/6) core; 386 specimens (Fig. 46v). Beads of this style are commonly referred to as "Cornaline d'Aleppo." Their ends range from practically unaltered breaks to well rounded. The cores of some beads are practically colourless because of a lack of sufficient pigment in the glass.

This bead type grades imperceptibly into its circular counterpart (type IVa6). Consequently, the two types were separated arbitrarily using the criterion that tubular beads have a length greater than their diameter. Specimens with a diameter equal to or greater than their length were classed as circular.

Diameter	Length
2.5 - 4.1 mm	2.8 - 5.8 mm

IVa6. Circular; very small to medium; opaque, redwood (6 ne; 10R 4/8) outer layer; transparent, apple green (23 ic; 10GY 6/6) core; 75 specimens (Fig. 46w). These are also "Cornaline D'Aleppo" beads. The cores of some of them are practically colourless due to a lack of sufficient pigment in the glass.

Diameter	Length
1.1 - 4.1 mm	0.9 - 4.0 mm

Wound Beads

These were produced by repeatedly winding a filament of molten glass around a rotating mandrel until the desired size and shape were achieved. Before the glass hardened, the beads were sometimes clamped in a mould to give them a special shape.

Wound beads constitute only six per cent of the bead collection. Eleven distinct types are represented.

WIb*. Round; medium and large; translucent, light gray (c; N 7/0); 10 specimens (Fig. 47a). Wind marks are evident in the glass. A white patina covers most specimens.

Diameter	Length
5.2 - 6.5 mm	4.6 - 5.3 mm

WIb*. Round; medium; opaque, dusty turquoise (18 gc; 2.5B 6/4); 100 specimens (Fig. 47b). Five of the beads are fused end to end as a result of burning. They may have fused in this manner because they were strung together when the burning occurred.

Diameter	Length
4.5 - 5.3 mm	4.2 - 5.2 mm

WIb*. Round; medium; opaque, aqua green (19 ic; 7.5BG 6/6); 1 specimen (Fig. 47c). The glass is swirled.

Diameter	Length
4.3 mm	4.7 mm

WIb*. Round; small and medium; opaque, dark palm green (23 ni; 10GY 4/4); 68 specimens (Fig. 47d). There are three examples of two to three beads joined end to end.

Diameter	Length
3.0 - 4.2 mm	2.6 - 4.1 mm

WIc1. Oval; small and medium; opaque, white (a; N 9/0); 15 specimens (Fig. 47e). Distinct swirl marks are visible in the glass.

Diameter	Length
3.1 - 4.8 mm	4.8 - 9.1 mm

WIc*. Oval; small and medium; opaque, black (p; N 1/0); 3 specimens (Fig. 47f). All of the beads are patinated.

Diameter	Length
5.9 - 8.0 mm	3.4 - 4.5 mm

WIc*. Oval; small; translucent, light gold (2 ic; 2.5Y 7/8); 3 specimens (Fig. 47g). The beads have irregular outlines and are patinated.

Diameter	Length
2.7 - 2.8 mm	3.2 - 4.8 mm

WIc*. Oval; small; transparent, bright copen blue (14 ia; 2.5PB 6/9); 1 specimen (Fig. 47h).

Diameter	Length
2.6 mm	4.0 mm

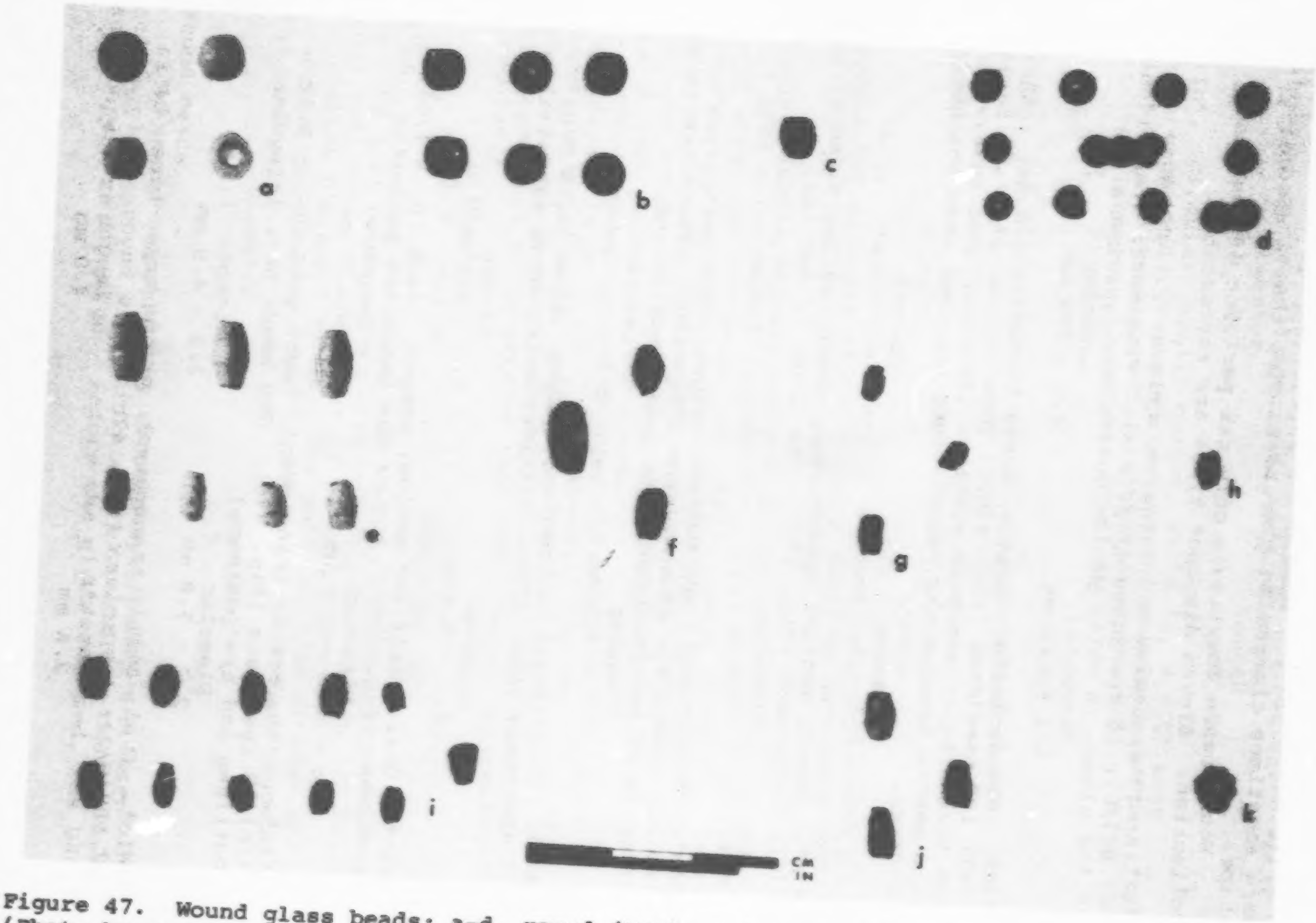
a
b
c
d
e
f
g
h
i
j
k
Cm
IN

Figure 47. Wound glass beads: a-d, round (WIb); e-j, oval (WIc); k, "melon" (WIIe). (Photo by R. Chan.)

WIc*. Oval; small; opaque, dark palm green (23 ni; 10GY 4/4); 15 specimens (Fig. 47i).

Diameter	Length
2.6 - 3.5 mm	3.6 - 5.5 mm

WIc*. Oval; small; translucent, dark palm green (23 ni; 10GY 4/4); 5 specimens (Fig. 47j). The beads appear to be black unless held up to a strong light. All of the specimens are patinated.

Diameter	Length
3.0 - 3.5 mm	5.4 - 6.2 mm

WIIe*. "Melon" beads; medium; opaque, aqua blue (18 gc; 2.5B 6/4); 2 specimens (Fig. 47k). The beads have six to eight rounded ridges running parallel to the axis of the perforation. These were produced by clamping the beads in a mould while they were still in a plastic state.

Diameter	Length
5.5 mm	4.4 mm - 5.8 mm

Clay Pipe Stem Beads

Eight clay tobacco pipe stem fragments have been reworked into what apparently served as beads. The specimens are 11.5 - 56.0 mm (28.0 mm median) long and 5.2 - 7.9 mm (6.3 mm median) in diameter. Four of them are covered with narrow, contiguous cut marks that run the entire length of each bead (Fig. 48g-j); two have cut marks that cover all but the approximate middle of each specimen where, consequentially, there is a very slight bulge (Fig. 48k-l); one is covered with scattered cut marks (Fig. 48m); and another has an unaltered surface (Fig. 48n). Two of the specimens have chewed ends, having once served as mouthpieces (Fig. 48k-l).

The ends of the beads are also diversified. Four specimens have ends that have been slightly to well smoothed by grinding or through use. Three others have one smoothed end while the other is formed by an unaltered break. The remaining specimen consists of an original mouthpiece with the bite at one end and an unaltered break at the other. In the latter case, the stem has been broken through a distinct circular incision. The various combinations of the preceding attributes, as exhibited by the recovered specimens, are shown in Table 6.

Perforated Lead Ball

Another possible bead consists of a .602-cal. lead ball perforated by a slightly tapered, off-centre hole 1.9 - 2.6 mm in diameter (Fig. 49g). The area around the wide end of the

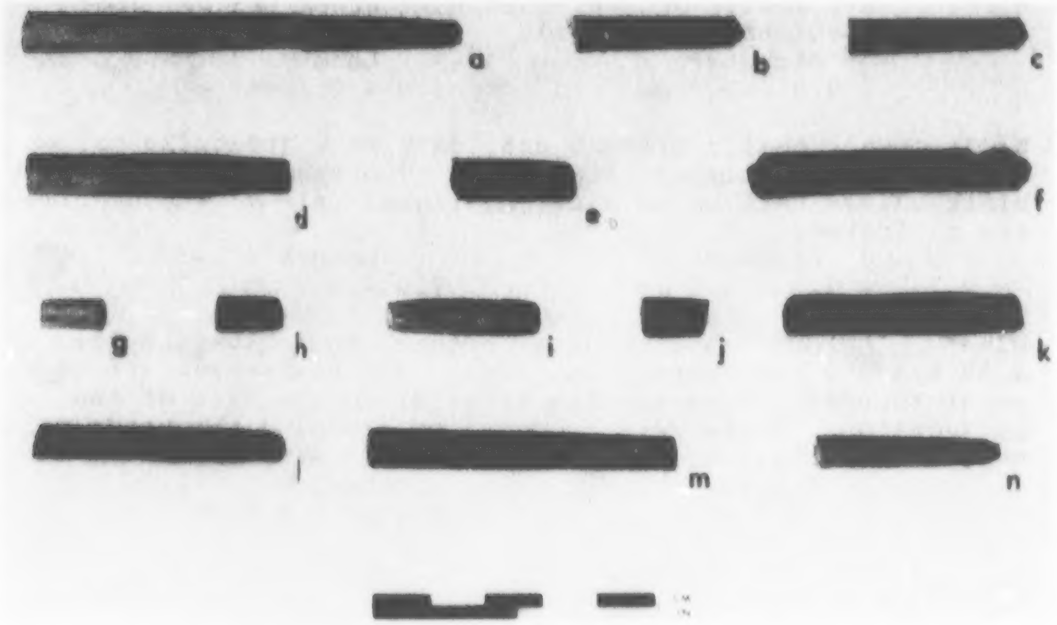

Figure 48. Clay tobacco pipe stem fragments: a-c, original mouthpieces with bevelled bites; d, stem fragment with end tapered by cutting or grinding; e-f, notched mouthpieces; g-n, stem fragments apparently reworked into beads. (Photo by R. Chan.)

Table 6. Clay Pipe Stem Bead Attributes (N = 8)

	Body Treatment			
End Treatment	Ubiquitous cut marks	Cut marks everywhere except around middle	Scattered cut marks	Unaltered
Both ends slightly to well smoothed	2 specimens (Fig. 48g-h)	1 specimen (Fig. 48k)	1 specimen (Fig. 48m)	
One end smoothed; unaltered break at the other	2 specimens (Fig. 48i-j)	1 specimen (Fig. 48l)		
Original bite at one end; unaltered break at the other				1 specimen (Fig. 48n)

perforation bulges outward while the area around the opposite end is slightly concave. The surface of the perforation bears striae perpendicular to the axis of the perforation. This intimates that the hole was drilled and not punched. The object is covered with what appears to be red ochre, suggesting that it may have been used as an ornament rather than a weight.

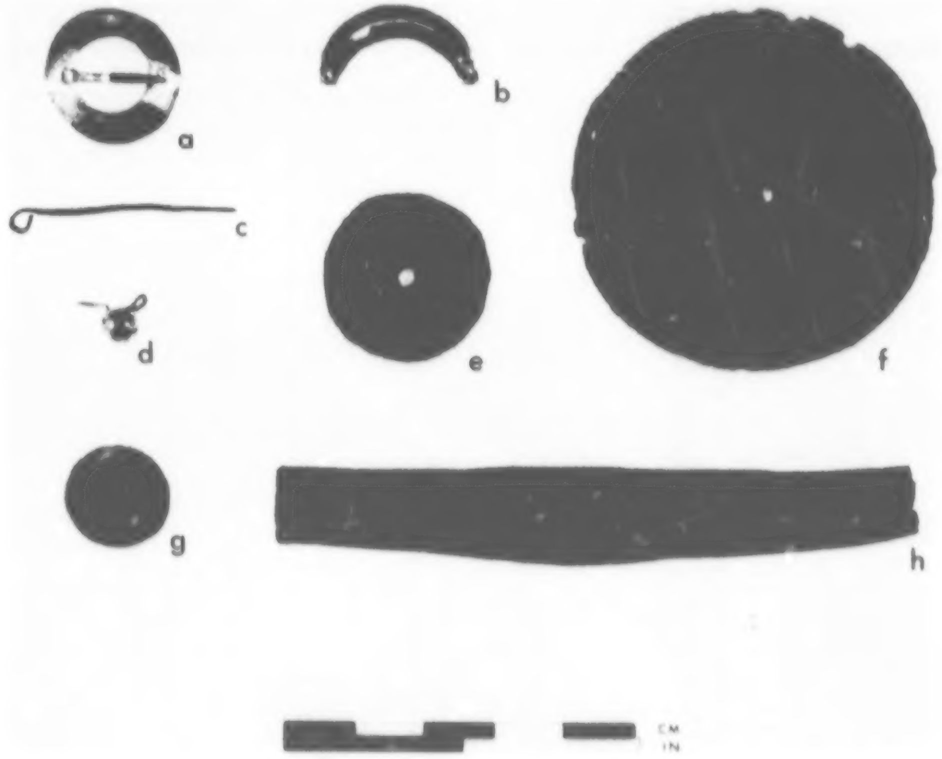

Figure 49. Ornaments: a, concavo-convex circular brooch; b, flat ring brooch; c, large brooch tongue; d, silver earbob; e, perforated sheet iron disc; f, tinned sheet iron disc; g, perforated lead ball; h, brass tube. (Photo by R. Chan.)

Tinkling Cones

The site produced 38 tinkling cones and two possible cone blanks. Materials include yellow metal and tinned iron.

Yellow Metal

Thirty-three of the cones and the two blanks are made of yellow metal.

Cones. The tinkling cones range in length from 13.2 to 25.2 mm with a mean of 21.2 mm (Table 7). They were formed by rolling trapezoidal sheets of copper (with traces of silver

Table 7. Yellow Metal Tinkling Cone Measurements, Including the Dimensions of the Trapezoidal Sheets They Were Made from (mm)

Cone Measurements		Sheet Measurements			
	Diameter		Width		
Length	Min. - Max.	Length	Min. - Max.	Thickness	Figure
13.2	4.2 - 5.4	12.3	9.6 - 14.2	0.3	50a
14.4	4.0 - 5.2	14.4	12.0 - 12.4	0.4	50b
17.5	3.6 - 5.6	17.0	10.7 - 14.2	0.4	50c
18.6	2.9 - 5.4	17.6	7.1 - 13.0	0.3	
19.2	3.2 - 5.8	18.2	11.1 - 14.3	0.6	
19.5	3.2 - 6.4	19.5	12.9 - 17.0	0.5	
19.5	3.8 - 5.4	18.8	10.7 - 13.6	0.3	
20.0	3.1 - 5.9	19.3	9.3 - 16.4	0.6	50d
20.4	2.7 - 5.2	20.3	10.8 - 13.1	0.4	
20.7	2.8 - 6.2	20.5	9.4 - 16.4	0.5	
20.8	3.5 - 5.6	20.8	11.7 - 16.3	0.65	
21.0	2.9 - 5.5	20.1	10.8 - 16.0	0.3	
21.2	2.6 - 5.1	21.2	8.3 - 13.4	0.3	
21.2	3.6 - 5.6	21.1	10.8 - 15.1	0.65	
21.3	2.8 - 5.7	21.2	9.5 - 15.3	0.55	
21.3	3.2 - 6.7	20.5	9.0 - 17.4	0.5	
21.4	4.0 - 5.7	21.3	11.1 - 15.1	0.5	
21.5	2.9 - 4.8	21.5	9.1 - 14.6	0.55	
21.5	3.1 - 6.9	21.1	9.5 - 17.2	0.4	
21.5	3.3 - 5.8	21.0	11.9 - 14.9	0.55	
21.6	2.7 - 5.3	20.7	9.0 - 14.9	0.5	
21.6	2.7 - 6.0	20.8	10.4 - 15.1	0.5	
22.0	3.0 - 6.0	21.4	8.3 - 14.5	0.45	50f
22.5	3.6 - 5.6	22.0	9.2 - 16.5	0.6	
22.9	3.0 - 6.0	22.0	11.4 - 15.0	0.45	
23.0	2.8 - 5.9	22.5	10.3 - 16.6	0.4	
23.9	2.6 - 5.7	23.9	9.0 - 25.0	0.55	50g
23.9	2.7 - 5.5	23.9	10.1 - 15.9	0.3	
24.2	2.8 - 5.5	24.1	8.6 - 14.8	0.55	
24.4	3.5 - 6.2	23.9	9.8 - 16.8	0.45	
24.6	3.1 - 6.1	24.6	9.8 - 14.7	0.5	
25.2	3.4 - 6.8	25.0	10.7 - 16.3	0.35	50h
25.2	3.8 - 6.0	24.1	10.6 - 15.6	0.55	

and lead), brass (68-72% copper, 27-30% zinc and 1-3% lead), and bronze (95-97% copper, 2-4% tin, less than 1.0% lead, and a trace of silver) into open ended cones (H. Unglik 1978: pers. com.). The edges of the sheets abut but do not overlap at the seams. The latter are straight (that is, parallel to the long axes of the cones) in 22 cases (Fig. 50a-d, h) and diagonal in the rest (Fig. 50f-g). Six specimens exhibit the guidelines that were scratched into the sheet metal before cutting out the cone blanks.

Twenty-one of the specimens contain leather thongs and tufts of braided wool (A. Douglas 1977: pers. com.; Fig. 50d, f-h), while two others have only leather strips in them. Another cone contains a string on which is suspended a small, tubular, opaque redwood on transparent apple green (type IIIa3) bead. Eighteen of the specimens with thongs and tufts in them were found in the shallow pit in Room D of the main house. This concentration suggests that they may have been attached to an article of clothing or some other item.

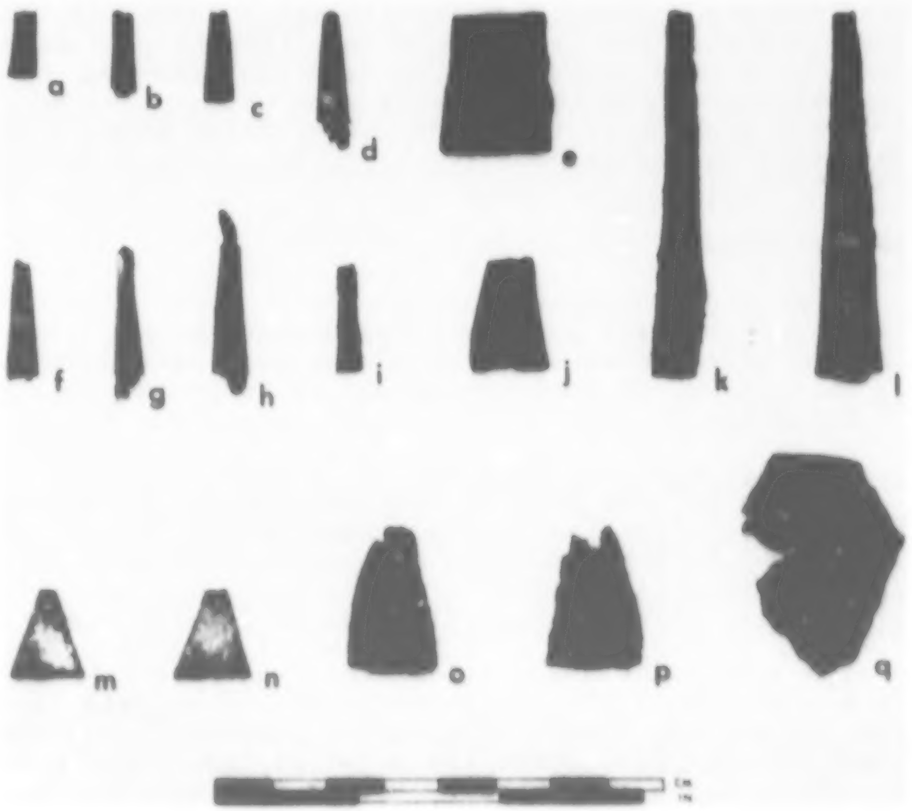

Figure 50. Tinkling cones and pendants: a-d, f-h, yellow metal tinkling cones; e, j, possible yellow metal tinkling cone blanks; i, k-l, tinned iron tinkling cones; m-p, trapezoidal sheet iron pendants; q, large sheet iron pendant fragment. (Photo by R. Chan.)

Blanks. The two postulated cone blanks (Fig. 50e, j) are composed of untinned copper. The largest of these is 26.0 mm long, 16.9 - 20.0 mm wide and 0.55 mm thick. The other is 20.8 mm long, 8.2 - 14.0 mm wide and 0.3 mm thick. They were recovered from the warehouse (Room D) cellar and the immediate vicinity of the structure at the southwestern end of the site, respectively.

Tinned Iron

The five iron tinkling cones are of two sizes (Table 8; Fig. 50i, k-l). They were made from trapezoidal pieces of tinned sheet iron (M. Tugeau 1976: pers. com.) in the same manner as the yellow metal specimens. The seams of two cones are straight (Fig. 50l), while those of the others are diagonal (Fig. 50i, k). The edges of the sheets do not overlap at the seams except for very short sections at the ends of three specimens. One of the large cones has had a 18.0-mm long slit cut in its wide end, thereby producing a 6.7 - 9.0-mm wide flap in the area between the seam and the slit. The metal adjacent to the flap has been folded inward (Fig. 50k), apparently to anchor the tinkling cone to some element that passed through it.

Silver Brooches

The site produced two concavo-convex circular brooches, one flat ring brooch, and one large brooch tongue. Quimby (1966: 93) states that silver brooches were used, often in large quantities, by both Indian men and women to decorate their garments.

Concavo-Convex Circular Brooches

Brooches of this type consist of concavo-convex discs that have open, circular centres traversed by narrow, hinged tongues. One of the recovered specimens is intact, while the other is missing its tongue.

The intact brooch (Fig. 49a) has an outside diameter of 19.2 - 20.0 mm and an orifice diameter of 11.2 mm. The disc, made of 0.2-mm thick sheet silver (H. Unglik 1978: pers. com.; Table 9 - No. 78-2146), is decorated with four sets of three undulating zig-zag lines. The script letters "R.C" have been stamped into the disc where the point of the tongue comes to rest. This is the touchmark of Robert Cruickshank, a Montreal silversmith and merchant who operated from 1774 to 1807 (Traquair 1973: 34-5).

The tongue is 14.9 mm long, 1.3 mm wide and 0.7 mm thick. It has a plano-convex cross section. The distal end is pointed while the opposite end has been formed into a loop. The latter passes through a hole in the disc and rotates around the piece of metal situated between the hole and the central aperture.

The incomplete brooch has the same configuration as the previous specimen but is not decorated or marked. The disc,

Table 8. Tinned Iron Tinkling Cone Measurements, Including the Dimensions of the Trapezoidal Sheets They Were Made from (mm)

Cone Measurements			Sheet Measurements			
Size Group	Length	Diameter Min. - Max.	Length	Width Min. - Max.	Thickness	Figure
a	19.8	3.0 - 5.1	20.5	11.3 - 13.9	0.04	50i
b	66.8	4.6 - 8.2	66.0	16.2 - 25.1	0.05	
	67.2	4.0 - 7.6	66.0	14.1 - 28.7	0.05	50k
	68.5	3.4 -11.9	67.8	14.0 - 31.0	0.05	50l
	52.8*	5.5*- 8.9	53.0*	19.0*- 28.3	0.05	

* Incomplete measurements.

Table 9. Metallurgical Composition of Selected Silver Artifacts (Percentages of Elements Based on EDX Semi-Quantitative Analysis by Henry Unglik, Conservation Division, Parks Canada, Ottawa)

Artifact Type	Lab. No.	Silver	Copper	Lead	Zinc	Iron	Gold
"RC" circular brooch	78-2146	92-96	3-7	1.0			
Plain circular brooch	78-2145	91-95	4-8				X
Flat ring brooch	78-2142	90-94	5-9	1.0			
Earbob globe	77-3606A	95-98	3-5	X	X	X	

X = trace.

which has been folded in half, appears to have had an exterior diameter of about 18.5 - 19.4 mm and an interior diameter of approximately 9.3 mm. It is made of 0.15-mm thick sheet silver (H. Unglik 1978: pers. com.; Table 9 - No. 78-2145). The disc has two small holes in it which may have accommodated a pin that held the brooch in place after the tongue broke off.

Flat Ring Brooch

The sterling silver (H. Unglik 1978: pers. com.; Table 9 - No. 78-2142) specimen lacks its tongue and has been folded in half and then hammered flat (Fig. 49b). Notwithstanding, it could be determined that the brooch consisted of a flat, 0.3 mm thick ring with an outside diameter of approximately 22.9 mm and an interior diameter of about 17.9 mm. A slight constriction in the ring denotes the spot where the tongue was attached.

Large Brooch Tongue

The tongue (Fig. 49c) is 33.1 mm long, 2.0 mm wide and

0.6 mm thick. It has a plano-convex cross section. One end has a sharp point while the other has been fashioned into a loop with an interior diameter of about 1.7 mm. The length of the tongue intimates that the central opening of the brooch that it came from would have been approximately 29.0 mm wide.

Finger Rings

The site produced ten metal rings, five of which are plain bands. The rest have one or more set stones. All but one of the specimens came from the main house. For an explanation of the terminology used see Fig. 51.

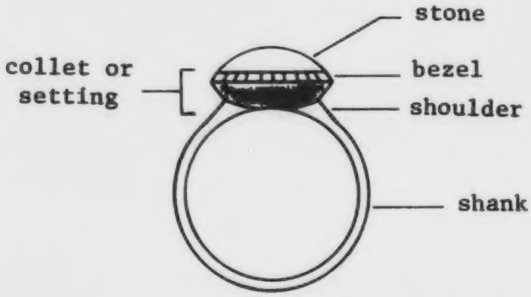

Figure 51. Ring terminology. (Drawing by S. Epps.)

Plain Bands

The bands are made of brass (4 specimens) and silver (1 specimen).

Brass. The brass (H. Unglik 1978: pers. com.; Table 5 - No. 77-3587) specimens appear to have been made from short sections of brass tubing. They are oval sectioned, and have polished exterior and spun interior surfaces. Three sizes seem to be represented (Table 10; Fig. 52a-c).

Silver. The silver band (Fig. 52d) is 1.8 mm wide, 0.6 mm thick and plano-convex in cross section. It has an exterior diameter of approximately 19.8 mm and an interior diameter of about 18.8 mm (.740 in.), indicating a British ring size of "R" (18.84 mm/.742 in.; G. Frankovich 1977: pers. com.). The method of manufacture could not be determined.

Single Stone Rings

Four rings have a setting for a single stone. Three of the stones are still in place and either exhibit an intaglio portrait (2 specimens) or are plain (1 specimen).

Table 10. Plain Brass Band Dimensions (mm) and Size Groups

Exterior Diameter	Interior Diameter	Width	Thickness	English Ring Size* with mm and inch equivalents)	Figure
22.0-22.1 (22.0 mode)	19.8-20.0 (19.9 mode)	6.0	1.0 - 1.2 (1.1 mode)	T 1/2 (19.81 mm; .780 in.)	52a
22.4-22.5 (22.4 mode)	20.5-20.6 (20.6 mode)	5.9	1.0 - 1.1 (1.1 mode)	V 1/2 (20.54 mm; .809in.)	52b
23.1-23.6 (23.3 mode)	20.9-21.2 (21.2 mode)	6.0	1.1 - 1.3 (1.3 mode)	X (21.13 mm; .832 in.)	
23.6-23.8 (23.7 mode)	21.0-21.2 (21.1 mode)	5.9	1.4 - [illegible] (1.4 mo[illegible]	X (21.13 mm; .832 in.)	52c

* George R. Frankovich (1977: pers. com.).

Intaglio. Three rings fall into this category (one of them is missing its stone but is otherwise identical to the other two). The specimens are made of cast brass (H. Unglik 1978: pers. com.; Table 5 - No. 77-3599) and exhibit distinct file marks produced when the mould marks were removed and the shanks were shaped. The shanks are plano-convex in cross section and expand slightly in both width and thickness toward their shoulders. Consequently, they are 2.2 - 2.5 mm wide and 0.7 - 1.0 mm thick at their bases, and 2.6 - 2.7 mm wide and 1.5 - 1.8 mm thick at their shoulders. All of the shanks have been deformed to some degree through use (Fig. 52e-f). Nevertheless, the indication is that three sizes are represented (Table 11). One of the shanks has cotton string wrapped around its base (J. Moore 1976: pers. com.), apparently to give it a tighter fit (Fig. 52e).

Table 11. Intaglio Ring Sizes

Interior Shank Diameter (mm)	Interior Shank Diameter (in.)	English Ring Size* (with mm and inch equivalents)
15.4-19.4 (17.65 ave.)	.606-.764 (.694 ave.)	O (17.58 mm; .692 in.)
17.7-19.6 (18.85 ave.)	.696-.772 (.742 ave.)	R (18.85 mm; .742 in.)
19.6-20.3 (19.95 ave.)	.772-.799 (.785 ave.)	U (20.04 mm; .789 in.)

* George R. Frankovich (1977: pers. com.)

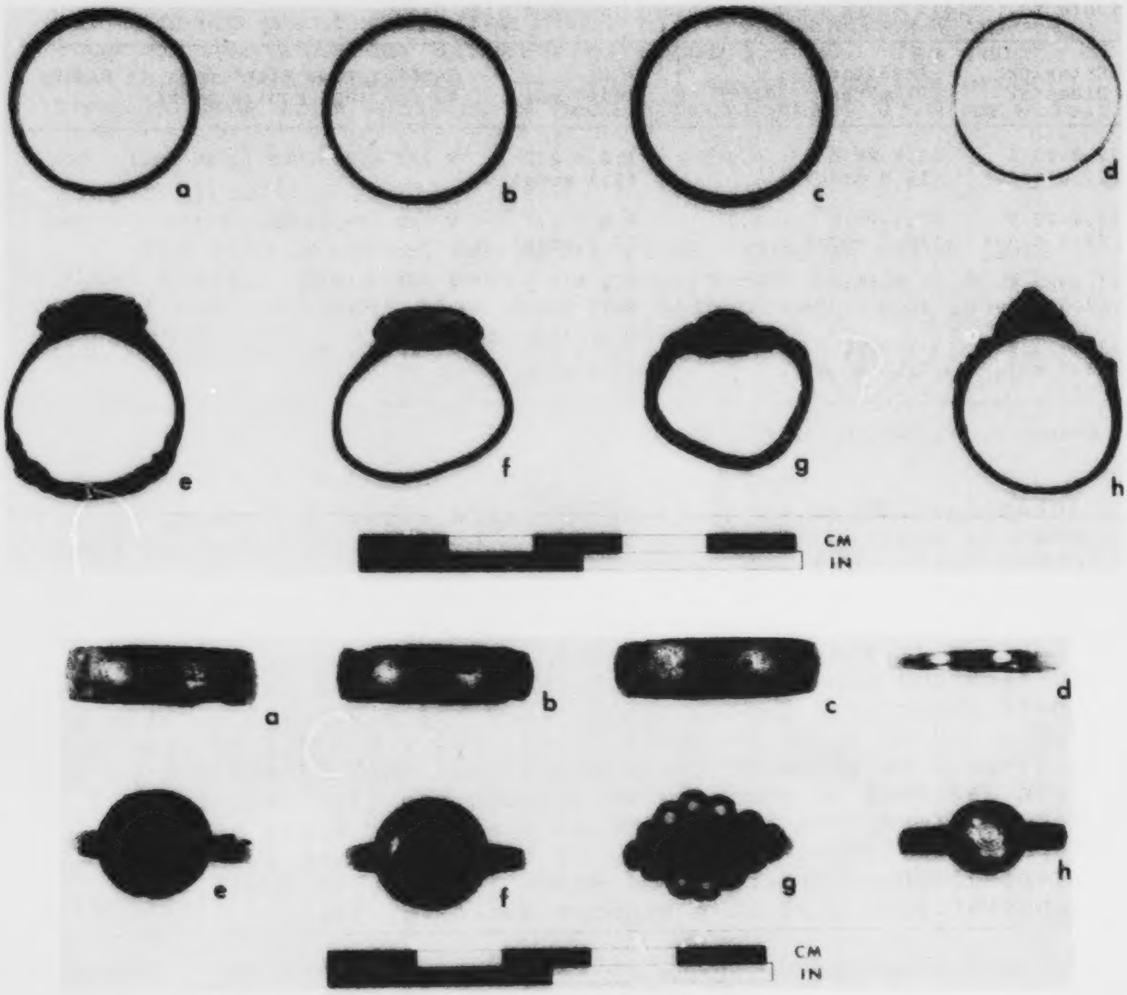

Figure 52. Finger rings, side (upper) and top (lower) views: a-c, plain brass bands; d, plain silver band; e-f, brass rings with intaglio portrait stones; g, pewter single stone ring; h, brass multiple stone ring. (Photo by R. Chan.)

The two intact rings have circular, lead glass (M. Tugeau 1976: pers. com.) "stones" with flat upper and lower faces, and bevelled sides. Either stone has a flange that encircles its base and is overlapped by the bezel, thereby securing the stone. One of the stones is a transparent purplish blue (7.5PB 2/6). The other has a clear body but appears reddish purple (7.5RP 6/6) because its base has been painted this colour. Each stone has the robust likeness of King George III impressed in its upper face. The intaglio bust faces right and produces the cameo impression shown in Fig. 53. The vertical axis of one bust is parallel to the plane of the shank, while the other is perpendicular to it. The stones are set in circular collets with ribbed bezels (Fig. 52e-f). The collets are 12.4 - 12.9 mm in diameter and 2.3 - 2.9 mm high.

These rings appear tantamount to the "seal" rings inventoried in the Nottingham House list of trading goods for the 1802-1803 season (HBCA, B.39/a/2, fol. 67).

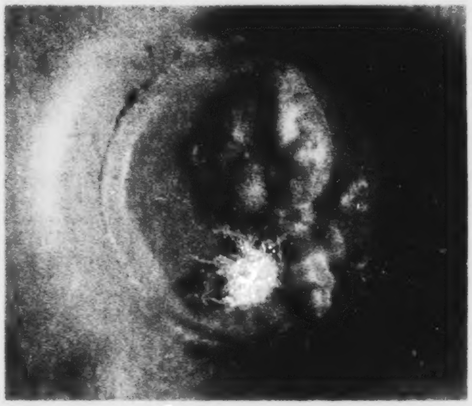

Figure 53. The cameo impression made by one of the intaglio rings. (Photo by R. Chan.)

Plain. The ring with the single plain stone (Fig. 52g) has a cast pewter (M. Tugeau 1976: pers. com.) body. Although they have been smoothed, the mould marks that encircle the interior and exterior of the shank have not been completely removed. The oval-sectioned shank is 1.7 mm wide and 1.3 mm thick throughout. It has been deformed, apparently through use, so that its interior diameter ranges from 13.1 to 16.8 mm, with an average of 15.55 mm (0.612 in.). This suggests a British ring size of about "I-1/2" (15.49 mm/.610 in.; G. Frankovich 1977: pers. com.).

The circular stone is made of a poorly pigmented, transparent, reddish (5R 6/6) lead glass (personal observation). It has a central, polyhedral facet surrounded by smaller facets of indeterminate shape. The stone is severly abraded, indicating long and/or hard use. It is set in a plain, circular collet 7.7 - 7.9 mm in diameter and 3.3 mm high. The collet is surrounded by 12 variegated annulations: there are three ribbed rings at either side, and three ringed depressions in a triangular configuration at either shoulder (Fig. 52g).

Multiple Stone Ring

This specimen has a cast yellow metal body exhibiting file marks resulting from manufacture. The bi-convex shank ranges from 2.6 mm wide and 0.9 mm thick at the base to 3.4 mm wide and 1.5 mm thick at the shoulders. The shank is lopsided in outline as a result of having been worn. It has an interior diameter of 16.8 - 18.4 mm, with an average of 17.7 mm (.696 in.). This suggests a British ring size of "O" (17.58 mm/.692 in.; G. Frankovich 1977: pers. com.).

The ring has one primary and four secondary stones (Fig. 52h). The former, made of clear lead glass (personal observation), is circular in outline and has a domed surface with a small nipple at the top. The nipple is encircled by a dotted ring from which radiate six dotted lines. The stone is set in a circular, 8.5 - 9.2-mm diameter, and 2.8 - 3.2 mm high collet which has a ribbed bezel.

The secondary stones are conical and composed of a transparent, purplish blue (7.5PB 2/6), apparently non-lead glass (personal observation). Two are situated on either shoulder and are set in circular collets about 3.6 mm in diameter.

Silver Earbob

This sterling silver (H. Unglik 1978: pers. com.; Table 9 - No. 77-3606A) ornament is represented by a hollow globe to which is attached a small wire loop and a slightly curved wire fragment (Fig. 49d). The globe is about 5.5 mm in diameter, while the wires have a diameter of 0.6 mm. A very small hole is located directly opposite the wire remnant. When complete, the latter would have formed a loop whose free end was inserted in the hole to secure it. A conical pendant was usually suspended from the other, much smaller loop. Similar specimens have been unearthed at La Loche House (ca. 1789-91; Steer 1973: 29) and Fort George (1792-ca.1800; Kidd 1970: 168-69), both of which were operated by the North West Company. They have also been found in a military context at Fort St. Joseph (1796-1829; Emerson et al. 1977: 251) and a 1730-60, possibly French, context at Fort Michilimackinac (Stone 1974: 137).

Brass Tube

An irregular tube formed from a rectangular sheet of brass cut from a kettle may have served as a hair pipe or some other form of adornment (Fig. 49h). The object is 93 mm long and has a medial bulge 10.1 - 14.8 mm in diameter. The ends are tapered and 5.6 - 11.0 mm in diameter.

Sheet Iron Pendants

Six small trapezoidal pendants made of tinned sheet iron (J. Svencicki 1976: pers. com.) were enumerated (Table 12; Fig. 50m-p). Each one has a small hole punched in its narrow end. One specimen exhibits two of the guidelines that were scribed in the sheet metal preparatory to cutting out the pendants.

A tinned sheet iron fragment with three straight cut edges and a perforation at one end may represent another pendant (Fig. 50q). The piece is 40.4 mm long, 29.4 mm wide and 0.06 mm thick. Its probable original size and shape could not be determined.

Table 12. Trapezoidal Sheet Iron Pendant Measurements (mm)

Specimen	Length	Width	Thickness	Figure
a	16.1	13.3	0.05	50m
b	16.2	13.9	0.05	50n
c	15.6*	14.2	0.05	
d	18.3	12.2	0.05	
e	27.1	16.1	0.06	50o
f	26.4*	17.5*	0.05	50p

* Incomplete measurements.

Sheet Iron Discs

Two slightly concavo-convex discs cut from tinned sheet iron (M. Tugeau 1976: pers. com.) were found in the northeastern end of the main house. One of them is about 53 mm in diameter and 0.3 mm thick (Fig. 49f). It has several tiny holes in it, all of which appear to have been formed by corrosion. The other disc (Fig. 49e) is 24.0 - 24.7 mm in diameter and 0.45 mm thick. It has a punched central perforation 2.4 - 2.6 mm across.

A perforated tin plate disc 32.1 mm in diameter and 0.5 mm thick was also uncovered at the site of Fort George in east-central Alberta (Kidd 1970: 126). It and the preceding specimens may be related to the perforated copper and silver discs used for personal adornment by a number of native groups (personal observation).

Silver Wire

A 67-mm long section of 0.9-mm diameter silver wire is included in this section as it is unlikely that it would have been used for anything else but ornamentation. One end of the specimen has been cut.

Vermilion

Three small pieces of vermilion (cinnabar) were found at the site. The substance is red (10R 4-5/8) and has a dull, earthy lustre. It volatilizes in an oxidizing flame emitting a strong sulphur smell.

Clay Tobacco Pipes

The clay pipe material consists of 18 bowl/stem fragments, 89 bowl fragments and 200 stem fragments, eight of which appear to have been reworked into beads. The presence of 38 original mouthpieces indicates that at least this many pipes are involved.

Bowl/Stem Fragments

The bowl/stem fragments represent two distinct pipe types: those with plain bowls and those with spurred bowls.

Plain Bowl. The first type, represented by 13 specimens, has a plain, unmarked, conical bowl whose mass is at an angle of about 110 degrees to the bore of the stem (Fig. 54a-f). The bowls of four relatively intact specimens are 40.0 - 41.5 mm high, 22.0 - 25.0 mm in diameter at the crown and have a capacity of approximately 9.0 - 9.4 cc. The rims of the bowls have cut, flat lips and slope toward the front of each pipe. Three of the bowls have rims at an angle of 4.0 - 7.5 degrees to the bores of their respective stems (Fig. 54a-b), while the fourth specimen has a rim at an angle of 21.5 degrees to the stem (Fig. 54c). All of the bowls have flat-bottomed interiors. The mould marks on the stems and bowls have been removed in most cases. One of the bowl/stem fragments is dark gray to black (7.5R 4/0-2.5/0) throughout and may have been made this way intentionally (Fig. 54d). The bowls of eight specimens are charred from use. The rest appear to be unused (1 specimen) or are so fragmentary that it is impossible to determine whether or not they have been smoked (4 specimens).

The stems of the pipes are straight and unmarked. The most intact one is 98 mm long (Fig. 54a), indicating that they were at least 4.0 in. long originally. Based on the degree of taper of the stems and of the recovered mouthpieces, the indication is that the type 1 pipes had stems between 114 mm

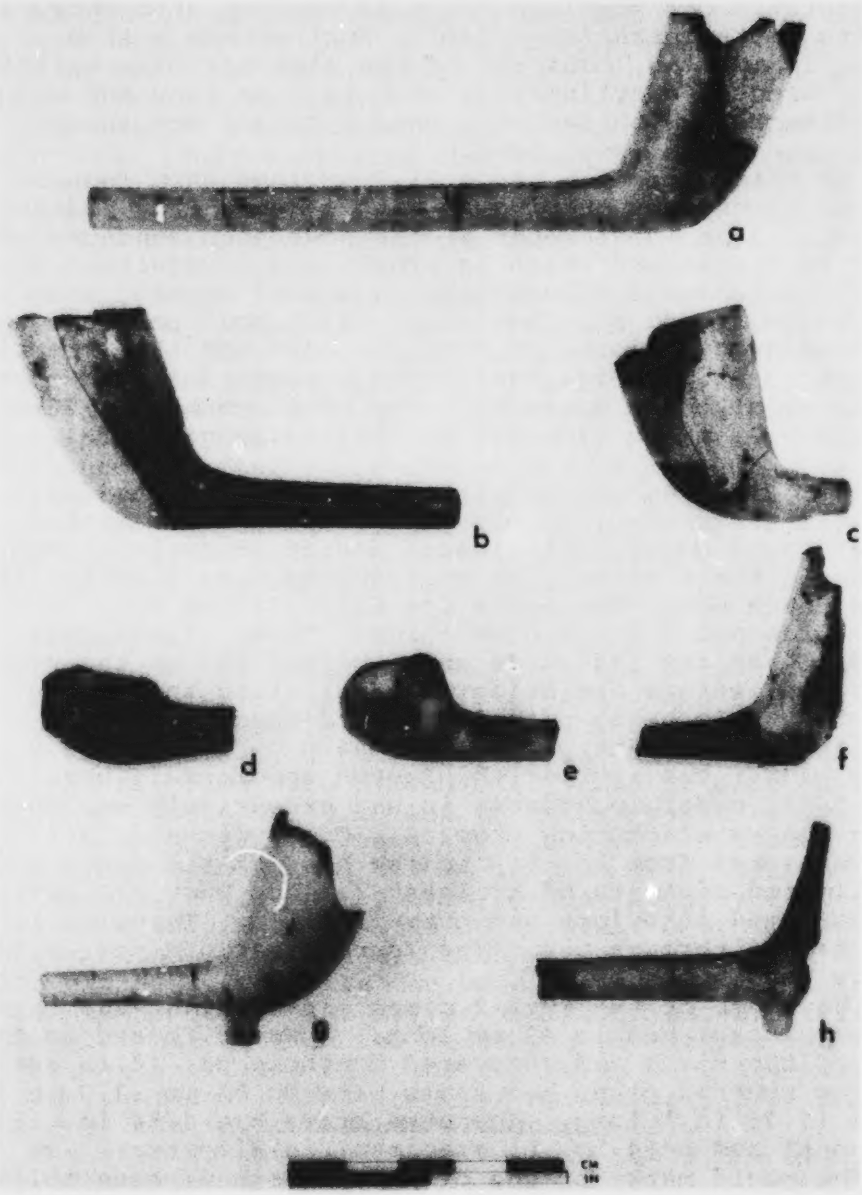

Figure 54. Clay tobacco pipe bowl/stem fragments: a-f, plain, unmarked bowls; g-h, unmarked bowls with peg spurs. (Photo by R. Chan.)

(4.5 in.) and 180 mm (7.0 in.) long. The diameters of the bores are as follows: 4/64 in. (2 specimens), 5/64 in. (10 specimens) and 6/64 in. (1 specimen).

Four of the type 1 pipes continued to be used after they were broken. One specimen has a 47-mm long stem whose end exhibits teeth marks (Fig. 54b). Another has a stem remnant 14 mm long. The end of the stem has been whittled down to produce a cylindrical stub 12.0 mm long and about 7.2 mm in diameter which may have been intended for insertion in a wood or reed stem (Fig. 54c).

The third specimen has a 21.2-mm long stem remnant which has been tapered by shaving it with a knife (Fig. 54f). The stub is 10.2 mm in diameter at the bowl/stem juncture and 6.1 mm at the distal end which is broken and irregular. It was probably intended for insertion in a wood or reed stem.

The remaining pipe has a truncated bowl produced by cutting a groove around it near the base and then breaking off the upper portion (Fig. 54e). The broken edges were then lightly smoothed by grinding. The bowl remnant is 20.6 mm high, 18 - 22 mm in diameter and has a capacity of 1.2 cc.

Spurred Bowl. The second pipe type is represented by four bowl/stem fragments (Fig. 54g-h). These have unmarked, conical bowls whose central axes are at an angle of about 120 degrees to their stems. An oval peg spur is situated at the base of each bowl. The spurs are 6.1 - 7.2 mm high, 6.3 - 7.0 mm wide and 4.9 - 7.0 mm thick. Three of the spurs have a raised "T" on the left side and a raised "D" on the right side. The letters are oriented parallel to the axis of the stem with their bases pointing toward the mouthpiece (Fig. 54g). The letters are 3.5 - 4.0 mm long and 3.5 - 4.0 mm wide. The spur of the fourth specimen is unmarked (Fig. 54h), possibly because it was extensively smoothed during the manufacturing process. The bowls are 39 - 46 mm high, measured from the lip to the base of the spur, and have an estimated capacity of at least 7.2 cc. They all have flat-bottomed interiors and cut, flat lips. Three bowls have been charred through use. The fourth specimen does not appear to have been smoked.

The stems of the type 2 pipes are straight and unmarked. The most intact one is 42 mm long. However, based on the taper of the stems and recovered mouthpieces, it is estimated that the spurred pipes had stems between 84 mm (3.0 in.) and 133 mm (5.25 in.) long. The stem bores are 4/64 in. (3 specimens) and 6/64 in. (1 specimen) in diameter.

The mould marks on one of the pipes have been obliterated by trimming and smoothing (Fig. 54h). Those on the other three have been trimmed from all surfaces except for portions of the spurs.

Unattributable Fragment. One of the bowl/stem fragments has no distinguishing characteristics and, therefore, cannot be typed. The specimen exhibits no signs of use. Its stem remnant has a 5/64-in. bore.

Bowl Fragments

The recovered bowl fragments are all unmarked, and the rims have cut, flat lips. Slightly over 58 per cent of the fragments have charred interior surfaces. The rest show no signs of having been used.

One charred rim fragment has a broken edge also charred through use. This indicates that the pipe it came from continued to be smoked after a portion of the crown broke off. Two other rim fragments have severely battered lips, probably because the bowls they came from were banged on a hard surface to rid them of ashes.

Several other fragments exhibit signs of cutting or grinding. One of these, a basal fragment with a ground upper edge, probably came from a pipe with a truncated bowl similar to that illustrated in Fig. 54e. Similarly, three rim fragments broken through or adjacent to grooves incised roughly parallel to their lips probably came from bowls that were shortened after their crowns became broken. The grooves are situated just below the battered lip of one fragment, and 9.4 - 14.5 mm below the lips of the other two pieces. The incisions are 2.2 - 2.4 mm wide, up to 10.2 mm long, and appear to have been made with a file.

Stem Fragments

The stems are unmarked and, with the exception of one very slightly curved specimen (Fig. 48a), are all straight. The longest fragment is 88 mm long. Twenty fragments have chewed ends indicating that they served as mouthpieces after the original bites were broken off. Another nine have been tapered by cutting or grinding to either serve as mouthpieces, or to fit wood or reed stems (Fig. 48d-e). Two mouthpieces have notches cut in them 10.0 - 13.3 mm from their narrow ends (Fig. 48e-f). This was apparently done to provide the smoker with a more secure bite. The 38 original mouthpieces all have bevelled bites (Fig. 48a-c) which were trimmed with a circular motion of the knife while the bore wires were still in the stems. As no other bite styles are represented, it is presumable that both of the recovered pipe types had bevelled bites. The specimens have the following bore diameters: 4/64 in. (20 specimens), 5/64 in. (142 specimens), 6/64 in. (20 specimens) and indeterminate (10 specimens).

The stem fragments converted into beads are described under "Clay Pipe Stem Beads."

Stone Tobacco Pipes

Two items tentatively identified as a steatite pipe fragment and a claystone pipe blank, respectively, make up this category.

Steatite Pipe Fragment

This object, a very small (18.7 by 10.0 mm) piece of very dark gray (5Y 3/1) steatite has two planar surfaces meeting in about a 55-degree angle. The smaller face is covered with numerous, fine cut marks. The other is polished and decorated with an incised, ladder-like design parallelled by a row of punctate depressions (Fig. 45c).

Claystone Pipe Blank

The pipe blank consists of a rectanguloid block of non-calcareous claystone measuring approximately 76.5 by 71.0 by 45.5 mm (Fig. 55a-b). All of its faces are partially to completely covered with cut and grind marks, and several high spots are slightly polished. A portion of the block has been removed by ringing the stone to a depth of 5.0 - 6.4 mm with a knife and then breaking off the piece. The resultant scar was subsequently filed smooth.

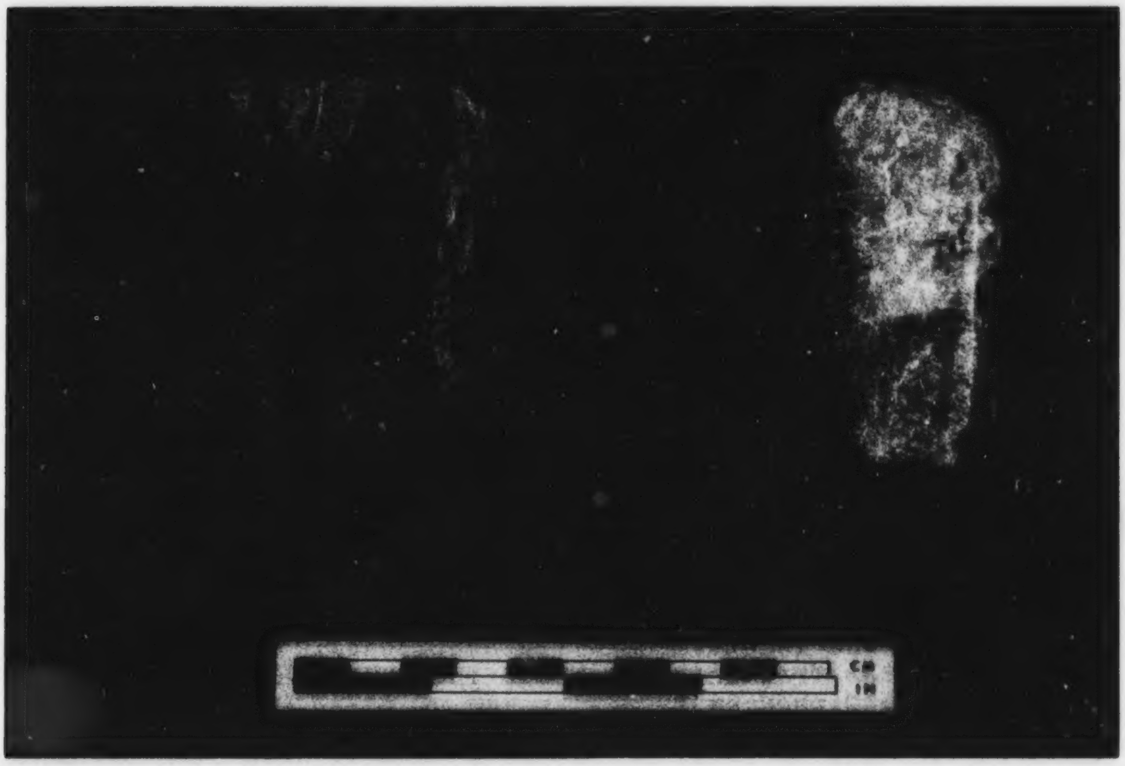

Figure 55. Claystone tobacco pipe blank: a, side view; b, end view. (Photo by R. Chan.)

Tobacco Box

A tobacco box with burning glass is represented by a 42-mm long, 4.2-mm wide and 1.6-mm thick segment of the lense retaining ring (Fig. 45d). The exterior side of the object has a very narrow (about 0.7 mm wide) groove at its base which accommodated the sheet metal making up the lid of the box. The opposite side has a small, squared ridge extending along its centre, immediately above which is an approximately 1.1-mm wide groove that would have held the burning glass in place. Although the rest of the box is missing, it is quite likely that it was similar in form to the Hudson's Bay Company specimen illustrated in Hanson (1973: 3-4). It was probably made of plain or japanned iron. A ferrous metal tobacco box lid fragment with an intact, near identical lense retaining ring was unearthed at the site of Fort Wedderburn II (1817-18; personal observation).

Gallipots

The remains of one white salt-glazed stoneware and two creamware gallipots were uncovered at the site. All of them were produced by throwing and turning and are of English origin (R. Whate 1978: pers. com.). They were used to package and ship ointments such as pomades for the hair (R. Whate 1978: pers. com.).

Creamware

The creamware gallipots or pomade jars are of two different forms: cylindrical or can-shaped, and hemispherical.

Cylindrical. Represented by a sizeable composite fragment (Fig. 56d) and three smaller pieces, the cylindrical specimen has a moulded rim and a countersunk base. It is 60 mm high and 55 mm in diameter at the rim.

Hemispherical. The specimen with the hemispherical body is near complete (Fig. 56c). It has a rolled and flattened rim, and a flat base. Standing 50 mm high, it is 70 mm and 35 mm in diameter at the rim and base, respectively.

Stoneware

The white salt-glazed stoneware specimen is represented by two fair-sized, composite rim/side sherds (Fig. 56a-b). The object has a hemispherical form with a rolled and flattened rim estimated to have been about 70 mm in diameter.

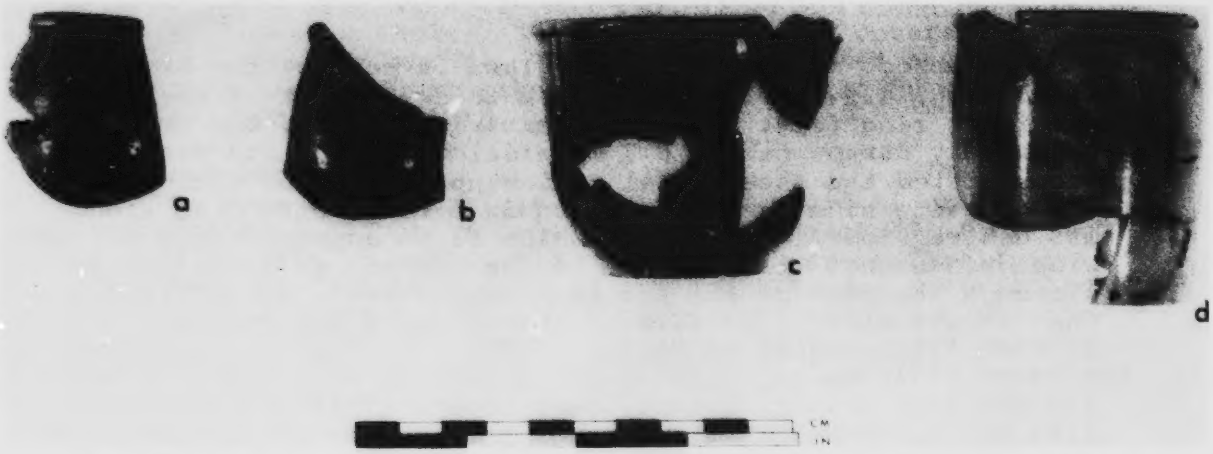

Figure 56. Gallipots: a-b, hemispherical, white salt-glazed stoneware; c, hemispherical, creamware; d, cylindrical, creamware. (Photo by R. Chan.)

Bottles

The site yielded one near complete bottle and the fragments of at least eight others. The specimens can be grouped into three categories on the basis of colour: olive green, yellowish green and colourless.

Olive Green

Two types of olive green (10Y 5/5) bottles can be distinguished on the basis of body shape. Both were blown in single piece moulds terminated at the shoulder.

Round-Sectioned. The single, cylindrical-bodied bottle is represented by two major portions, one upper (Fig. 57a) and one lower (Fig. 57b), and 29 lesser fragments, most of which are burned. The neck of the vessel is slightly heat deformed at the base but appears to have been approximately 46 mm high. It has a downtooled lip and string rim 9.2 and 8.1 mm high, respectively. The bore is about 24 mm in diameter. The rounded shoulder is estimated to have had a diameter of about 100 mm. The 90 - 100-mm base has a domed kick with a circular, slightly rough pontil mark.

Square-Sectioned. The remains of at least one case bottle include two shoulder/body fragments and four body sherds. The exterior surfaces of the body segments are pebbled. Three of the pieces have been slightly warped by exposure to fire.

Unattributable Fragments. Six shoulder fragments and a piece of burned olive green glass may belong to either of the previous bottles.

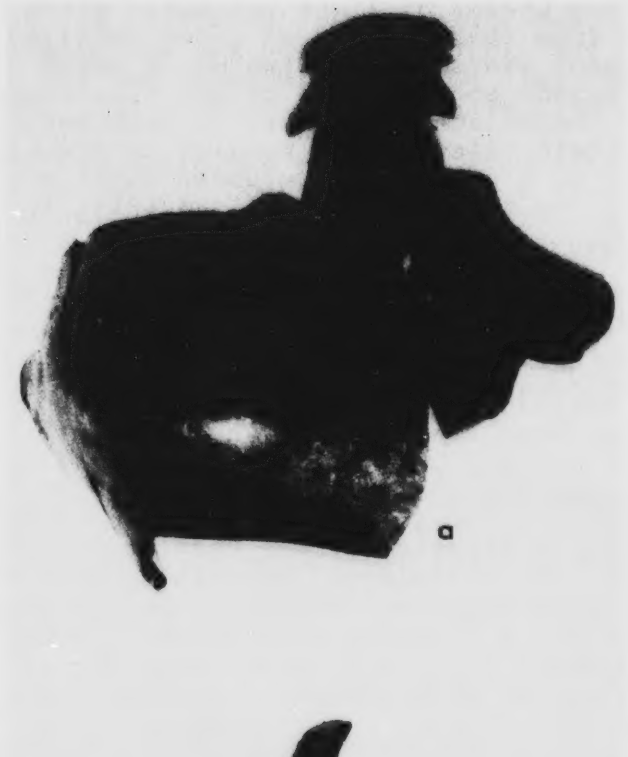

Figure 57. Olive green bottle fragments: a, neck/shoulder/body section: b, body/base section. (Photo by R. Chan.)

Yellowish Green

Two curved pieces of light yellowish green (2.5G 8/6) glass may be from the shoulder of a medium-sized bottle. The largest fragment seems to have two mould marks on it which are slightly divergent and about 34 mm apart following the curvature of the object. However, if both marks were imparted by a mould, their relationship remains undetermined. The glass fluoresces a pale ice blue under short wave ultraviolet light, indicating the presence of lead (Elville 1951: 266).

Colourless

There are three types of colourless bottles, all of which are composed of lead glass.

Round-Sectioned. One almost complete and three fragmentary medicine vials have cylindrical bodies which appear to have been free blown. The most intact specimen (Fig. 58a) is missing only a portion of its lip. It stands 93.6 mm high and has a capacity of 10 ml. Its 80.6-mm high body, which is 16.0 mm in diameter at the rounded shoulder and 15.8 - 16.5 mm in diameter at the base, has a slight medial constriction. An unfinished, circular pontil mark covers most of the basal surface. The straight, 12.4 - 12.9 mm diameter neck has a slightly downturned, flanged lip estimated to have been about 20.8 mm in diameter. The orifice is 8.8 mm across and the cork that sealed it is inside the vial.

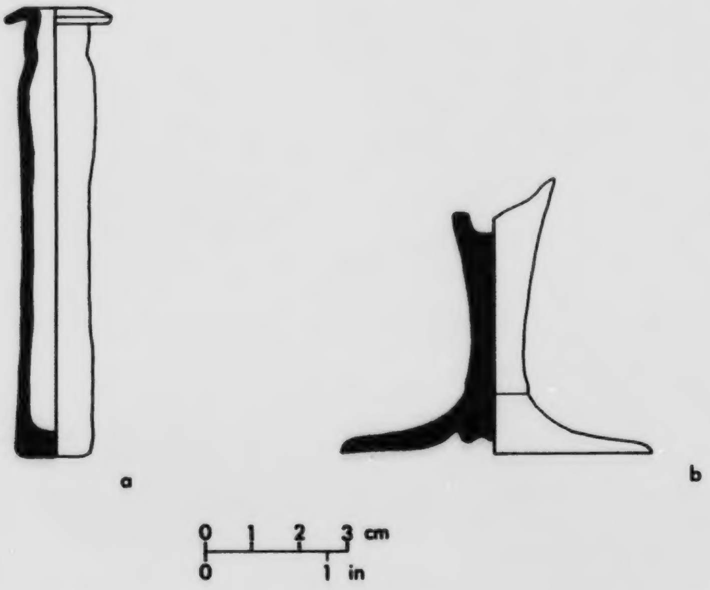

Figure 58. Glassware: a, colourless lead glass vial; b, plain stemware fragment. (Drawing by S. Epps.)

A slightly broader vial of similar form is apparently represented by one neck/shoulder fragment, two rounded shoulder fragments and six body fragments. The remains reveal that the body was approximately 20 mm in diameter and the neck was 10 mm high. The orifice seems to have been about 10 mm across.

The other two vials are extremely fragmentary, being represented by a tubular body section and a shoulder/body fragment, respectively. The former is 14.2 - 14.7 mm in breadth, while the body of the latter is calculated as having been about 16 mm in diameter.

Square-Sectioned. The burned and somewhat deformed base of what was probably a square medicine bottle has the letters ...ON embossed on one panel. the remains suggest that the container was about 18 - 19 mm square.

Fiddle-Shaped. Two fragments of the lower body segment of a Turlington's Balsom of Life bottle were found in Room D of the main house. The pieces display remnants of the following embossed inscription (the underlined letters appear on the sherds):

(Front) By THE
KINGS
ROYAL
PATENT
GRANTED
TO

(Back) ROB
TURL
INGTON
FOR HIS
INVENTED
BALSOM
OF
LIFE

The side to the right of the front panel is marked LONDON; the other is not represented but would have borne the patent date of January 26, 1754 (Brown 1971: 116).

Turlington's Balsom was a tincture of storax, coriander seeds, aloes, fennell, mastick, cardamums, frankincence, aniseeds, benjamin, angilica, gum elemy, cinnamon, guiacum, cloves, myrrh, nuttmeggs, araback, winter bark, perue balsam, nettle seeds, tolue, juniper, safron, mace, oyle, Saint John wort and marsh mallows. It was "to be taken in any liquid, thirty or forty drops at a time" to "cure the stone, gravel, cholick, and inward weakness" (Brown 1971: 117).

Tinned Iron Box

What appears to have been a very small, round or oval box is represented by the sides or walls of its base and cover (Fig. 45e-f). The basal portion is composed of a 145-mm long and 17.7-mm wide strip of 0.5-mm thick tinned sheet iron whose overlapped ends are soldered together. The object, which has been intentionally flattened, has a circumference of 140 mm, indicating that - if round - the base would have been 44.6 mm in diameter. Although the bottom is missing, a ridge of solder along one edge indicates where it was attached.

The cover fragment, which was found nearby, consists of a 85-mm long by 11.1-mm wide strip of tinned sheet iron which has been straightened and folded in half. The piece has a soldered vertical seam like that on the basal portion, and a ridge of solder extends along one edge where the top was attached. The width of the strip intimates that the cover was of the slip-on variety rather than hinged.

Pocketknives

These portable artifacts, also known as clasp knives and jackknifes, have pivoted blades that fold into a handle, thereby providing a safe method for carrying a sharp instrument. The seven recovered specimens can be assigned to three general categories: (1) knives with bulbous butt ends, (2) knives with squared butt ends and (3) unattributable blade fragments.

Bulbous Butt Knives

There are two varieties of these knives: those with long bolsters (Fig. 59a-b), and those with short bolsters (Fig. 59c, f).

Long Bolster Knives. This variety is represented by two relatively intact, practically identical specimens whose blades are in the folded position. The knives are 101.4 - 102.7 mm long, up to 29.0 - 30.0 mm wide and about 10.1 mm thick. Each knife has a single lanceolate blade with a V-grind (triangular cross section) cutting edge. The 81.1 - 86.7-mm long blades are up to about 20.0 mm wide and have a maximum thickness of 2.7 - 2.9 mm. They have squared tangs 10.6 - 12.3 mm long, 10.5 - 15.9 mm high and 2.7 - 3.0 mm thick. The upper edges of the tangs are situated 5.7 - 5.9 mm below the backs of the blades, while their lower edges extend past the cutting edge for about 1.0 mm. A trapezoidal kick 2.9 mm wide and 1.2 mm high is situated at the lower anterior corner of the tang and served as a stop for the blade when the latter was folded into the handle.

Each knife has an elongate, somewhat hook-shaped spring held in place by two rivets; one penetrating the spring near its approximate centre and one adjacent to the beginning of the curved portion. The 8.8 - 9.6-mm long rivets are 2.0 mm in diameter.

The bolster linings have one squared end and one bulbous end. A 36.0 - 40.5-mm long by 15.2 - 17.3-mm wide bolster is located at the squared end of each lining and is an integral part thereof. The bolsters have plano-convex cross sections and straight to slightly concave sides. There is a slightly flattened area adjacent to the exterior end of each bolster,

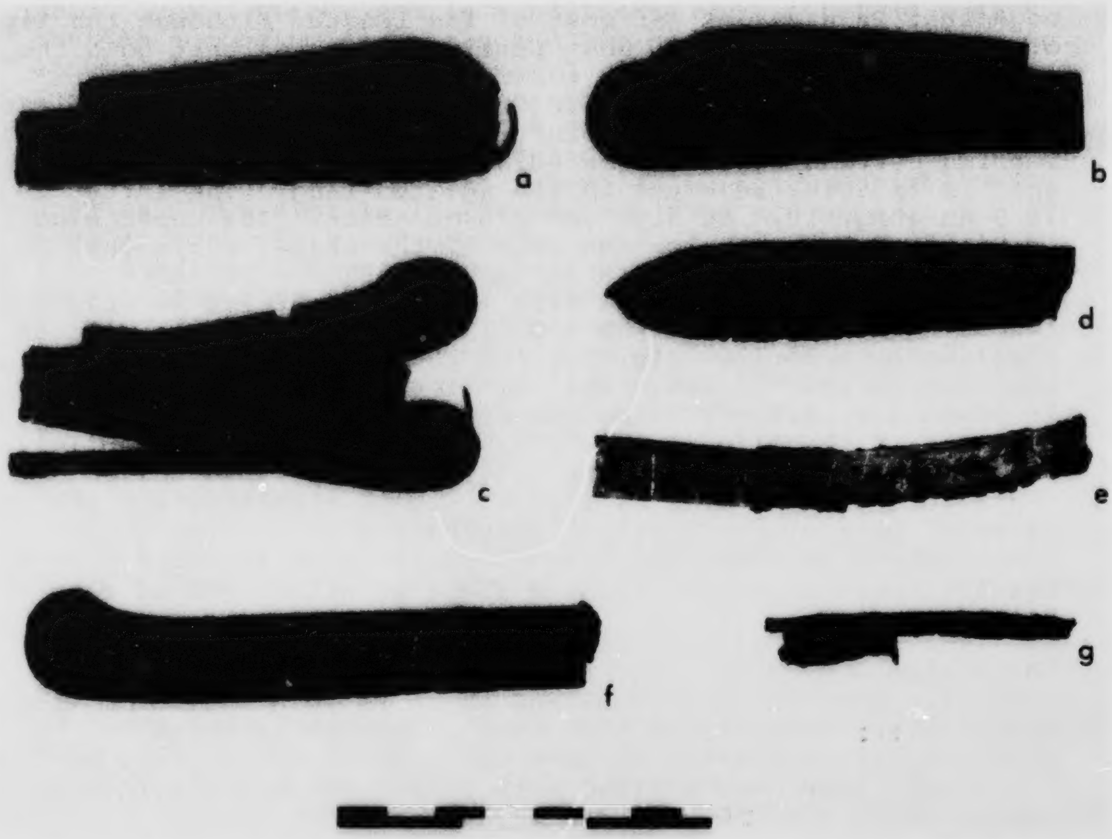

Figure 59. Folding knives: a-b, bulbous butt knives with long bolsters; c, f, bulbous butt knives with short bolsters; d, unattributable lanceolate blade; e, ornamental yellow metal knife handle; g, penknife fragment. (Photo by R. Chan.)

while the opposite end is marked by a distinct ridge. One to two incised, curved lines extend across each bolster adjacent to the flattened area. The remainder of each bolster lining is flat and expands gradually toward the bulbous end. The latter is 22.5 - 22.9 mm wide and was designed to shield the point of the blade. In situ wood fragments indicate that the knives had wooden handles that were held in place by four rivets, two of which also secured the springs. The lengths of the rivets suggest that the handles were about 2.7 - 2.8 mm thick.

Short Bolster Knives. Bulbous butt knives with short bolsters are represented by a relatively complete albeit partly disarticulated specimen, and a single bolster lining with attached tang. The relatively complete knife (Fig. 59c) has a single blade with a slightly convex back and a cutting edge that is straight for most of its length. Although the tip of the blade is missing, what remains indicates that both the edge and the back curved in toward the point, though not to the same degree. It is, therefore, very likely that the blade had an asymmetrical spear point. The blade remnant has a V-grind cutting edge, and is 68.5 mm long, up to 17.0 mm wide and 2.8 mm thick adjacent to the squared tang. The latter is 10.9 mm long, 12.0 mm high and 2.6 mm thick. Its upper edge is situated 5.2 mm below the back of the blade, while the lower edge extends past the cutting edge for a distance of 1.4 mm. The tang has a rounded kick that is about 1.6 mm wide and 1.2 mm high. The blade was kept in either the open or closed position by a spring (Fig. 59c) of the same form as those of the long bolster knives. The two rivets that held the spring in place are 10.0 - 10.7 mm long and 2.0 mm in diameter.

The bolster linings are 95.1 mm long and have essentially the same form as those of the previously described knives. The 13.0 - 13.4-mm wide by 15.9 - 16.0-mm high bolsters are an integral part of the linings. They have plano-convex longitudinal sections and plano-concave cross sections. As a result, there is a low, rounded ridge at either end of each bolster.

The portion of each lining that the handle was attached to is 81.0 - 82.0 mm long, about 1.0 mm thick and expands gradually toward the bulbous end which is 20.8 - 21.0 mm wide. The handles, probably of wood with plano-convex cross sections, are estimated to have had a maximum thickness of 2.4 - 2.8 mm. They were affixed with four ferrous metal rivets, two of which also secured the spring.

The incomplete short bolster knife (Fig. 59f) has the same form as the intact specimen but is proportionately larger. The lining is 112.7 mm long and has an integral bolster that is 15.3 mm wide and 17.3 mm high. The flat portion of the lining is 98.4 mm long and about 1.0 mm thick. It is practically parallel sided for most of its length, only noticeably increasing in width at the bulbous end which is 23.2 mm wide. The knife probably had wooden handles held in place by five rivets, two of which would also have anchored the spring. The one intact rivet is 9.7 mm long and 2.0 mm in diameter. The squared tang attached to the bolstered end of the lining is 12.1 mm long, 12.6 mm high and about 2.6 mm thick. It pivots on a 2.1-mm diameter pin.

Squared Butt Knife

The specimen consists of one very fragmentary and one relatively intact yellow metal handle attached to a decomposed remnant of a slotted, ferrous metal lining (Fig. 59e). Radiographs made before the artifact was cleaned reveal that the curved, slightly tapered handles were about 102.5 mm long. They are about 1.5 mm thick, and have squared ends that are 10.8 and 13.3 mm wide, respectively. The medial portion of each handle is decorated with a delicate, raised, floral motif (Fig. 59e). Either end is embellished with a raised square outline enclosing one plain and two beaded, curved ridges on either side of a straight beaded ridge with a leaf at one end. The practically intact handle exhibits three rivet holes: one at either end and one near the approximate centre. Radiographs indicate that the lining was somewhere between 3.7 and 4.2 mm thick and had the same length and width as the handles. The slot is in the concave side and appears to have been approximately 1.7 mm wide.

A knife with near identical handles was recovered from Buckingham House (H.B.Co./1792-1800; Nicks 1969: 215), while a folding fork with the same type and size of ornamental handles was excavated at the probable site of Acton House (H.B.Co./-1799-1821; Noble 1973: 114-15, 141). As the Nottingham House specimen is missing its diagnostic component(s), its identity is uncertain. However, the fork has only two rivets while the knife has three, like the Nottingham House specimen. Hence, the latter item is tentatively identified as a knife. If it was like the one described by Nicks (1969: 215), it would have had a blade with a "sharp point" at the narrow end and a blade with a "rounded end" at the broad end.

Unattributable Blade Fragments

There are two folding knife blade fragments that cannot be assigned to either of the foregoing categories. The first of these is a lanceolate blade that has broken off at the tang (Fig. 59d). The V-grind blade is 97.4 mm long, and up to 21.3 mm wide and 2.7 mm thick. Tiny remnants of the tang indicate that its upper edge was located about 5.0 mm below the back of the blade. The relative location of the lower edge could not be determined.

The second specimen is the tip of a relatively wide, probably lanceolate blade. It has a V-grind edge and is 22.0 mm wide.

Bone Comb

The comb, a fragmentary rectangular specimen (Fig. 45g), is 39.5 mm long (incomplete), 40.8 mm wide and 1.5 - 1.6 mm thick. It has coarse teeth 12.7 mm long along one side and fine teeth of the same length along the other. There are 12.5-13 fine teeth and 6.5-7 coarse teeth per centimeter. The points of the teeth are lightly rounded. The teeth do not extend the full length of the comb, because of a 5.7-mm wide untoothed strip along the intact end. The latter has slightly bevelled edges.

Mirror Fragments

Fifteen pieces of 1.3 - 1.4-mm thick, very light bluish green (5BG) pane glass with remnants of a metallic coating on one surface are identified as mirror fragments. Twelve of them, apparently all from one mirror, were found in Room D of the main house. The rest, representing another mirror, came from the North West Company structure. Each of the latter pieces exhibits one or more cut edges: one of them has two straight sides intersecting in a right angle; another has a single gradually curved edge; and the third has a curved edge terminating in a straight one. The indication is, therefore, that the mirror had three rectilinear sides meeting in square corners and one curved side. None of the other fragments displayed cut edges.

The metallic residue on the backs of the fragments was thoroughly analysed to determine its composition. The tests revealed that the specimens from the main house were "silvered" with an amalgam of mercury and tin, a common mirror alloy, while those from the NW Co. structure were backed with an amalgam containing tin, lead and a trace of silver (J. Schlieman 1973: pers. com.).

A mirror that has lost its silvering appears to be represented by an incomplete rectangle of pale blue-green (2.5BG) glass. The object (Fig. 45h), one end of which has broken off, is 83.4 mm long, 53.0 mm wide and 2.4 mm thick. These measurements correspond quite well to those of a restored mirror from Fort George, Alberta, which measured 89 mm long, 52.6 mm wide and 2.0 mm thick (Kidd 1970: 128).

Printed Paper

Tiny remnants of several pages of a book or pamphlet were discovered under a brass kettle fragment in pit A. The paper is rather coarse and appears to be composed entirely of wood pulp. The printing, done in black ink, is on both sides of the paper. Words and letter combinations that were noted include propriety/ proved.__/ Concave/ ...ing/ ...men.../ to/ ...piou.../ ...lily.../ ...hat.../ ...he G.../ ...read.../ ..nt/ Pil.../ ...n ...are.

Domestic Items

Fire Steels

Also known as strike-a-lights, these steel items are of two types: those with an ovate form and those with projecting handles.

Ovate Fire Steels

The only specimen of this type is 82.0 mm long, up to 36.4 mm wide and 3.2 - 4.0 mm thick (Fig. 60a). The ovoid interior that accommodated the fingers of the user is 61.5 mm long and a maximum of 16.4 mm wide.

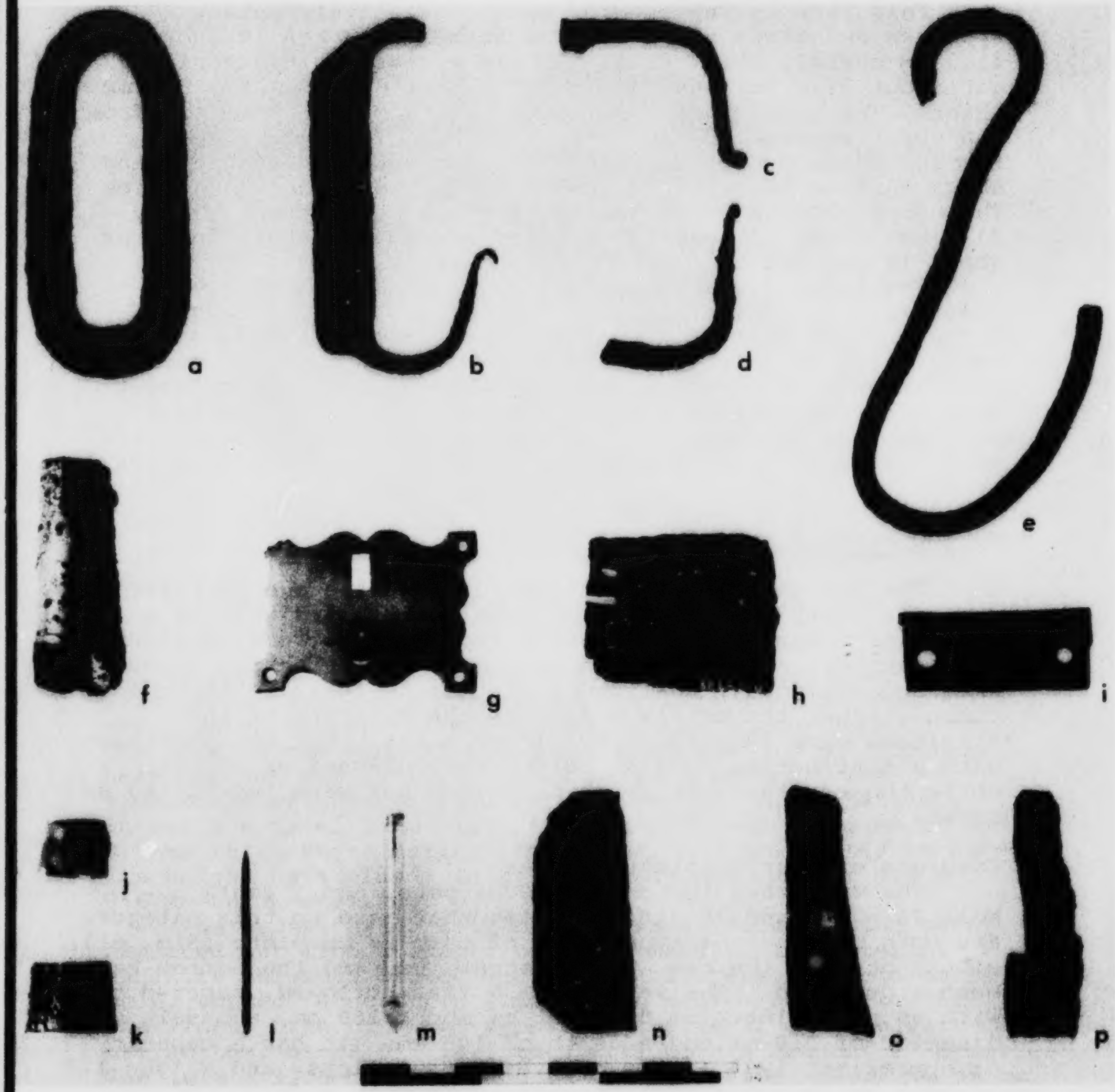

Figure 60. Domestic items: a, ovate fire steel; b, fire steel with projecting handles; c-d, fire steel handles; e, kettle hook; f, funnel spout fragment; g, brass furniture lock; h-i, copper hinges; j, yellow metal thimble; k, composite thimble; l, needle fragment; m, thermometer tube fragment; n, tinned sheet iron lug; o-p, tinned sheet iron handles. (Photo by R. Chan.)

Steels with Projecting Handles

This type is represented by one relatively intact specimen and three handles. The former measures 79.5 by 41.2 mm overall (Fig. 60b). It has a rectanguloid striking bar about 71.0 mm long, 12.5 - 13.3 mm wide and 2.6 - 3.1 mm thick. The handles, one of which is incomplete, project from the upper corners of the bar. They have flat sides and rounded edges. The intact handle has a curved base standing about 23.6 mm high and is up to 5.1 mm wide and 4.1 mm thick. The upper portion is relatively straight and approximately 21.8 mm long. It has a recurved end and is at an angle of about 18 degrees to the back of the striking bar.

The three dissociated handles are from a larger and slightly different variety of fire steel. The primary difference is that both the upper and lower portions of the handles are relatively straight (Fig. 60c-d). The segments meet in sharply curved elbows, and are at an angle of about 80-90 degrees to each other. The upper sections are 30.3 - 31.6 mm long and have recurved ends. The lower portions are 26.0 - 28.3 mm long, and up to 6.4 mm wide and 3.8 mm thick.

Yellow Metal Kettles

The Nottingham House collection contains one complete and one relatively complete yellow metal kettle, as well as a number of fragments. The latter represent at least another four kettles. Although some of the more distinctive items were scientifically analysed to determine their metallurgical compositions, the metals making up the majority of the specimens were identified by visual means; that is, specimens with a distinctive reddish colour were classed as copper, while those with a yellowish or golden hue were identified as brass.

Complete or Near Complete Kettles

The two brass (H. Unglik 1978: pers. com.; Table 5 - Nos. 78 -2141 and 78-2144) kettles that make up this category are both of the same type. One of them is complete (Fig. 61), albeit part of the rim, the adjacent lug, and the bottom have become detached. The vessel has a flat-bottomed, tapered body with an upper interior diameter of about 269 mm, a basal diameter of 219 mm and a depth of 148 mm. It has a capacity of approximately 7 litres or 1.84 U.S. gallons, and weighs 1.3 kg or 2.86 lb. The metal ranges in thickness from 0.35 mm directly under the rim to 1.3 mm in the centre of the bottom. The mean thickness is 0.68 mm. A thick layer of charcoal on the exterior of the vessel before cleaning revealed that it had been used.

The kettle has a 9.9 - 10.9 mm wide rolled rim reinforced with a ferrous metal rod 7.0 - 7.2 mm in diameter. The lugs consist of rectangular brass sheets folded in half. Their open ends overlap the kettle rim for a distance equal to about half the length of each lug, and they are secured by two cast

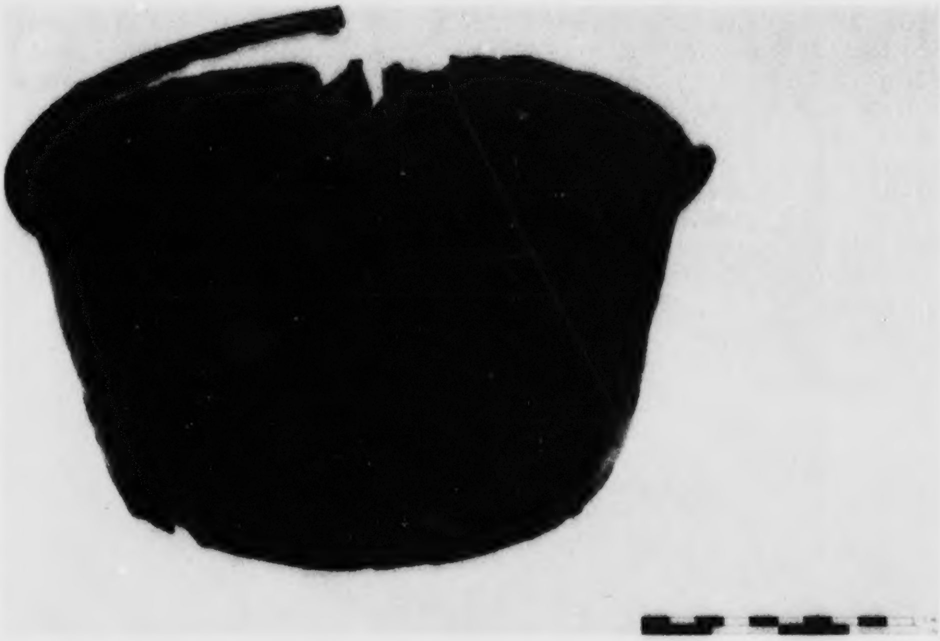

Figure 61. Brass kettle. (Photo by R. Chan.)

copper rivets with flat heads 13.4 - 14.6 mm in diameter (Fig. 61). The upper corners of the lugs are bent down onto their outer faces, while the lower corners have been cut off. The hole in the approximate upper centre of either lug has been punched and is 15.4 - 16.6 mm in diameter. The dimensions of the two lugs vary slightly. The relatively intact one is 85.3 mm high, 57.8 mm wide and composed of 0.6 - 0.9-mm thick sheet metal. The other, too fragmented to have its height determined, is 61.5 mm wide and made of 0.4 - 0.6 mm-thick sheeting.

The vessel has a slightly uneven surface, having been hammered out from a single piece of metal. Its interior exhibits numerous broken and intact blisters, as well as 14 bold, scored, concentric lines and a scored band (Fig. 62). The lines, nine of which appear on the walls and the rest on the bottom, are 8.0 - 18.5 mm apart, with a mean of 13.8 mm. The 10.0 - 12.0-mm wide band is situated 81.6 - 83.7 mm below the rim, and 49.2 - 52.7 mm above the bottom. The significance of the scored areas is uncertain. However, it may be they were produced by a gauging device utilized during the manufacturing process to ensure that the kettle conformed to a set standard regarding size and shape. The fine scoring is interrupted by the blisters while the band cuts across them. This suggests that the kettle was annealed or otherwise heat-treated after the narrow lines were produced and, presumedly, any

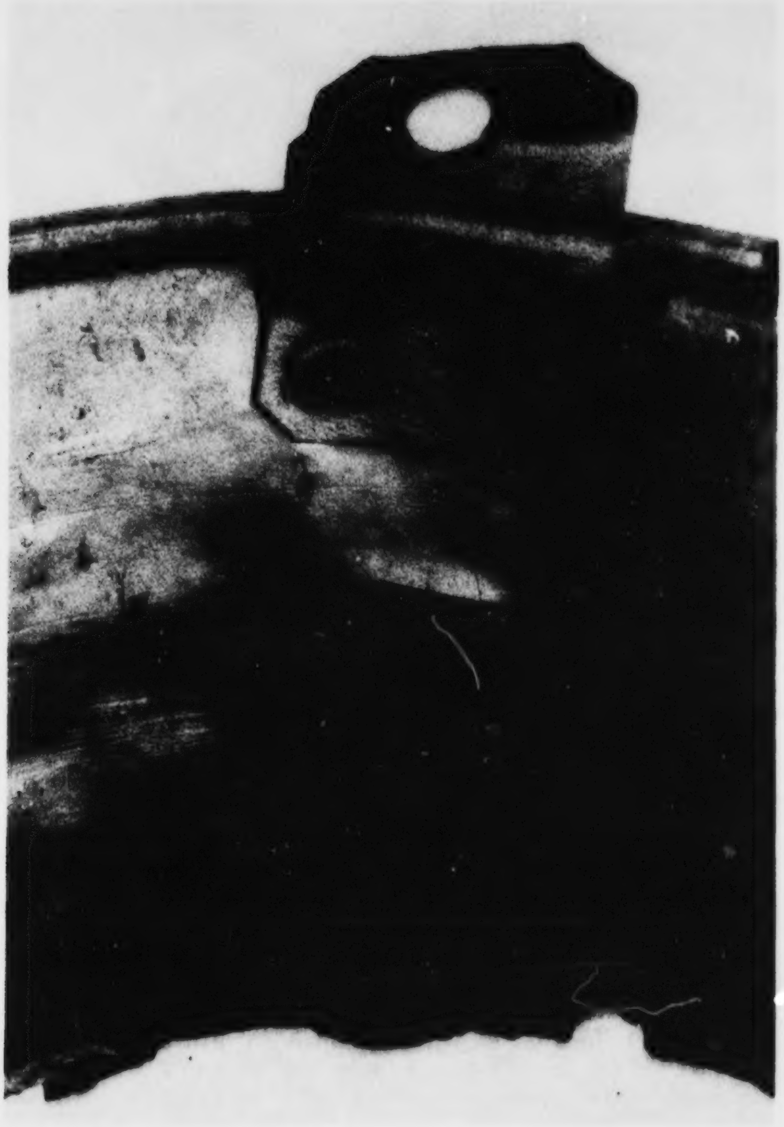

Figure 62. The blisters and scored lines on the interior of the brass kettle in Figure 61. (Photo by R. Chan.)

irregularities that were noted had been rectified. The vessel was then apparently final checked using the gauging device, at which time the broad scored area was created.

The other kettle (Fig. 63) has not fared as well; its bottom has been cut off and the rod that reinforced the rolled rim has been removed. The object is, therefore, somewhat distorted but appears to have had an upper interior diameter of approximately 352 mm, a basal interior diameter of 302 mm or less, and a depth of at least 170 mm. It is estimated to have had a capacity of at least 14 litres or 3.7 U.S. gallons. The body is 0.4 - 0.55 mm thick at the rim and 0.5 - 0.8 mm thick at the base, with a mean of 0.56 mm. The lugs, one of brass and one of copper, are of the folded sheet variety described previously. They are 94.0 - 95.0 mm high, 58.0 - 63.2 mm wide and formed from 1.0-mm thick sheeting. The copper lug has broken through above its distorted bail hole. The hole in the other lug is less deformed and appears to have been about 14 mm in diameter. The two cast yellow metal rivets that hold each of the lugs in place have flat heads that are 15.1 - 17.5 mm in diameter.

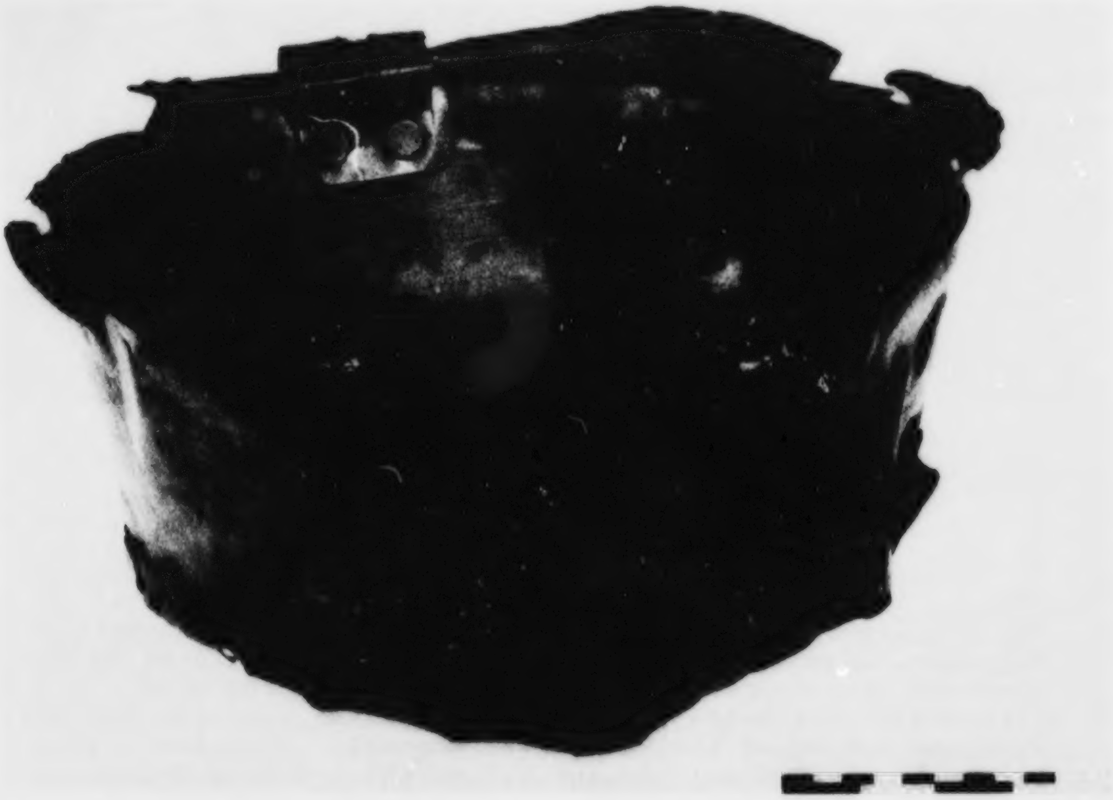

Figure 63. Bottomless brass kettle. (Photo by R. Chan.)

The kettle was manufactured in the same manner as the previous one. Consequently, its exterior exhibits numerous hammer marks, while the interior displays ten scored, concentric lines set 12.4 - 20.0 mm apart (15.6 mm mean), as well as an 11.0-mm wide scored band situated 98.4 - 109.2 mm below the lip of the rim (Fig. 64).

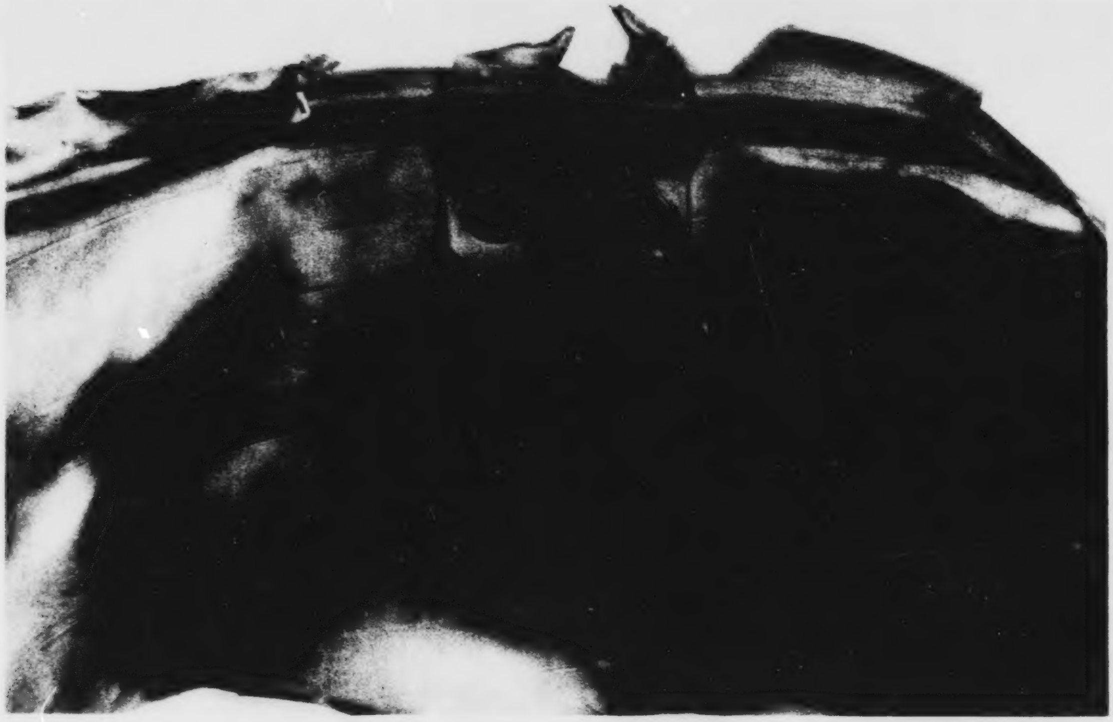

Figure 64. The scored lines and band on the interior of the brass kettle in Figure 63. (Photo by R. Chan.)

The vessel has been used, as indicated by the distorted bail holes and the presence of a thick layer of charcoal on the outside of the object before cleaning. That the kettle was repaired on at least one occasion is demonstrated by the presence of a copper patch on the outside of the base (Fig. 65). The patch is incomplete, having been cut through when the bottom of the kettle was removed. What remains is 122 mm long, 22.4 mm wide and 0.5 mm thick and is attached with eight small copper rivets. The patch has a brazed tabbed-construction seam indicating that it came from a kettle or some other vessel that had been made in this manner.

Kettle Fragments

The items constituting this category include 61 body fragments, two rim lugs, one rim reinforcing rod and two rivets.

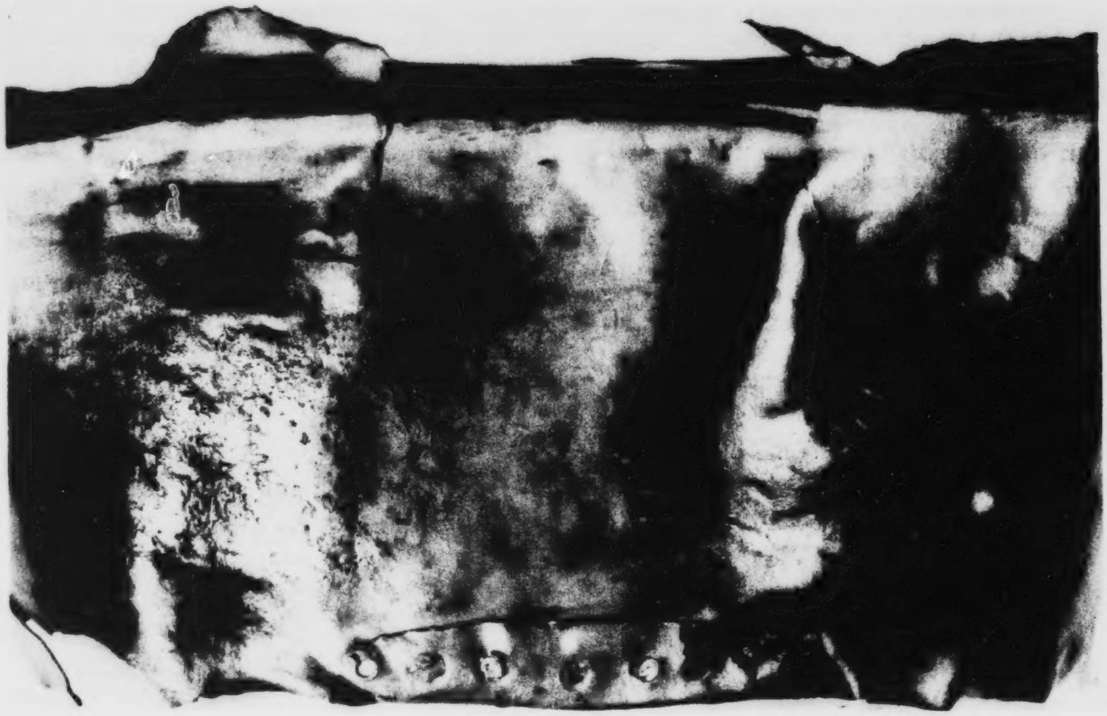

Figure 65. The copper patch remnant on the outside of the base of the bottomless kettle. (Photo by R. Chan.)

Body Fragments. Yellow metal kettle bodies are represented by seven rim fragments, 15 wall fragments, two bottoms and 37 unattributable fragments. The rims are all of the rolled variety reinforced with ferrous metal rods. The latter have been removed and the rims subsequently straightened. The fragments are up to 297 mm long by 51 mm wide, and range in thickness from 0.4 to 0.9 mm (0.56 mm mean). Four of them are brass and have irregular outlines. The others, all from the warehouse cellar, are composed of untinned copper and have been neatly cut parallel to the rim, apparently using shears (Fig. 66a).

The 15 wall fragments are all fairly small, the largest being 77 mm long and 62 mm wide. All of them are composed of brass and distinguished by the presence of bold, parallel, scored lines on one of their faces which are identical to those on the interior wall surfaces of the relatively intact kettles. The fragments are 0.45 - 1.0 mm thick, with a mean of 0.62 mm. Nine of them exhibit at least one cut edge.

The two kettle bottoms are made of brass and copper, respectively. The brass specimen is incomplete and has a jagged perimeter, pieces having been cut and broken from it.

The interior surface of the 0.6 - 1.5-mm thick remnant displays five bold, scored, concentric circles situated 9.5 - 14.0 mm (11.9 mm mean) apart. The distance from the centre of the innermost circle to the farthest edge is 65 mm, indicating that the bottom was at least 130 mm in diameter originally.

The copper (with a trace of silver; H. Unglik 1978: pers. com.) bottom is complete, with a diameter of 176 mm and a thickness of 0.25 - 0.6 mm. It was cut out, apparently using shears, and then folded into quarters (Fig. 66b). A brazed (92-96% copper and 4.8% zinc; H. Unglik 1978: pers. com.) seam of tabbed construction encircles the circumference. The 26 tabs that make up the seam are 5.2 - 7.0 mm (6.0 mm mean) wide perpendicular to the seam and of two alternating lengths parallel to it: 6.8 - 9.4 mm (8.8 mm mean) and 22.0 - 40.0 mm (28.2 mm mean).

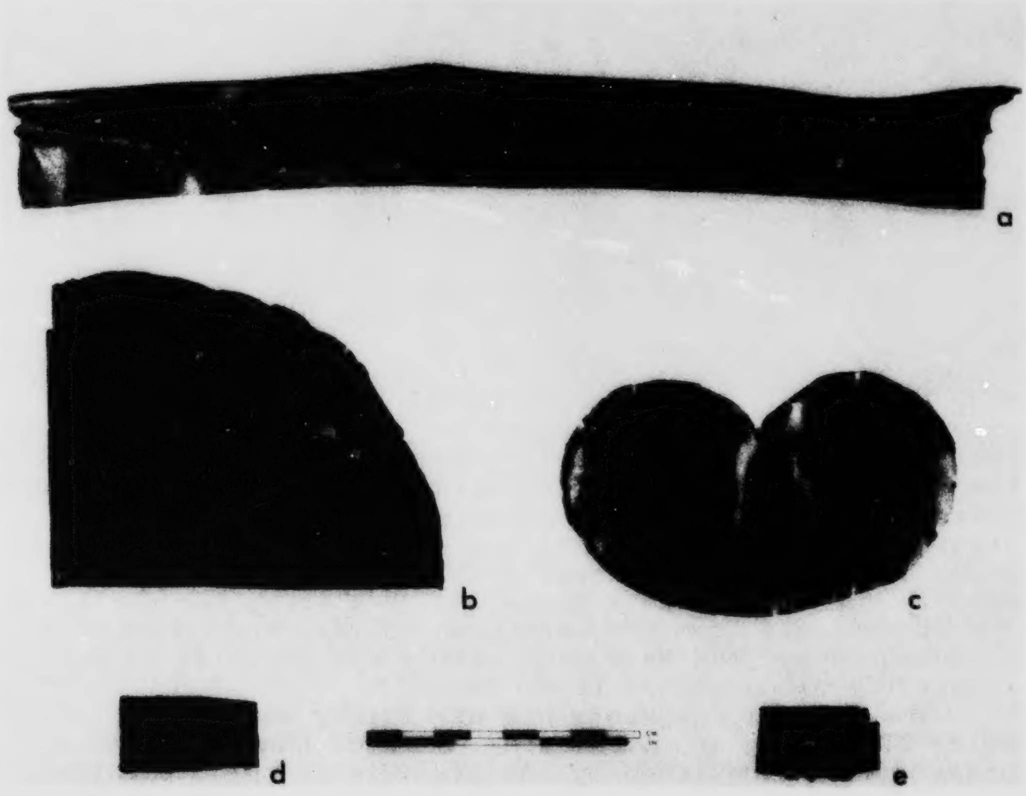

Figure 66. Yellow metal kettle fragments: a, cut copper kettle fragment with rolled rim; b, copper bottom from tabbed seam construction kettle; c, bilobate object cut from tinned copper kettle metal; d, rectangular tinned copper kettle fragment showing signs of reuse; e, two tinned copper kettle fragments riveted together. (Photo by R. Chan.)

Fragments that cannot be attributed to any specific part of a kettle because they lack distinguishing characteristics are composed of tinned copper (23 specimens), untinned copper (11 specimens) and brass (3 specimens). The tinned copper fragments, three of which exhibit tabbed seam remnants, are 0.45 - 1.05 mm (0.75 mm mean) thick and vary in size from tiny scraps to one piece that is 222 mm long by 59 mm wide. All of them have two or more cut edges.

Two of the tinned copper fragments show signs of reuse. The first of these is rectangular and measures 41.2 by 22.4 by 0.5 mm. Two very small, square nail holes are in its centre and another is in one of the corners (Fig. 66d). The second item consists of two 21.0 - 52.5-mm long, 18.8 - 21.8-mm wide and 0.50 - 0.55-mm thick tinned copper strips held together with a cast copper rivet that has a flat head 14.4 mm in diameter (Fig. 66e). The object is 61.7 mm long overall and has three short slits cut in either end.

Another piece of tinned copper has a bilobate outline (Fig. 66c) and measures 117.7 mm long, 72.5 mm wide and 0.45 mm thick. Its shape suggests that it may have been intended to serve as a chest lift plate or the like. Two more pieces have straight and relatively parallel guidelines (?) scribed on them. The lines, three on one piece and four on the other, are 3.7 - 32.6 mm apart, with a mean of 14.3 mm.

The 11 pieces of untinned copper were recovered from pits A-B, and have all been burned to some extent. It is, therefore, quite possible that some, if not all, of them may have been tinned originally, the tin having volatilized when the burning occurred. The fragments are up to 81 by 66 mm in size and 0.4 - 0.8 mm (0.55 mm mean) thick. They all have one or more cut edges.

The three unattributable brass fragments are up to 41 by 24 mm in size. They are 1.0 - 1.2 mm thick and exhibit two or more cut edges.

Rim Lugs. The two folded sheet brass (H. Unglik 1978: pers. com.; Table 5 - No. 77-3618) lugs are of the same form as those on the relatively intact kettles. Two sizes are represented. The larger one (Fig. 67a) is 46.6 mm high and 37.5 mm wide, with a sheet thickness of 0.5 mm. It has a deformed bail hole that is 13.2 mm high and 9.5 mm wide. The lug is attached to a rolled brass rim fragment with two cast copper rivets that have 8.2 - 8.8-mm diameter flat heads. The rim fragment is 0.4 - 0.9 mm thick and has three broad, parallel, scored lines on its interior 8.4 - 9.1 mm apart.

The smaller lug (Fig. 67b) is incomplete, the lower part of the backside having been cut off just below the bail hole, while the base of the other side has been detached just above the presumed rivet location. After it was salvaged, the lug was pounded flat. The remnant is 26.5 mm long and 23.8 mm wide, with a sheet thickness of 0.3 - 0.4 mm. The circular bail hole is 6.4 - 6.8 mm in diameter.

Rim Reinforcing Rod. Made of ferrous metal, the recovered specimen (Fig. 67f) consists of a 180-mm long fragment that is 8.0 - 8.6 mm in diameter. The complete rod is estimated to have had an interior diameter of about 300 mm. It may have reinforced the rolled rim of either a kettle or a kettle cover.

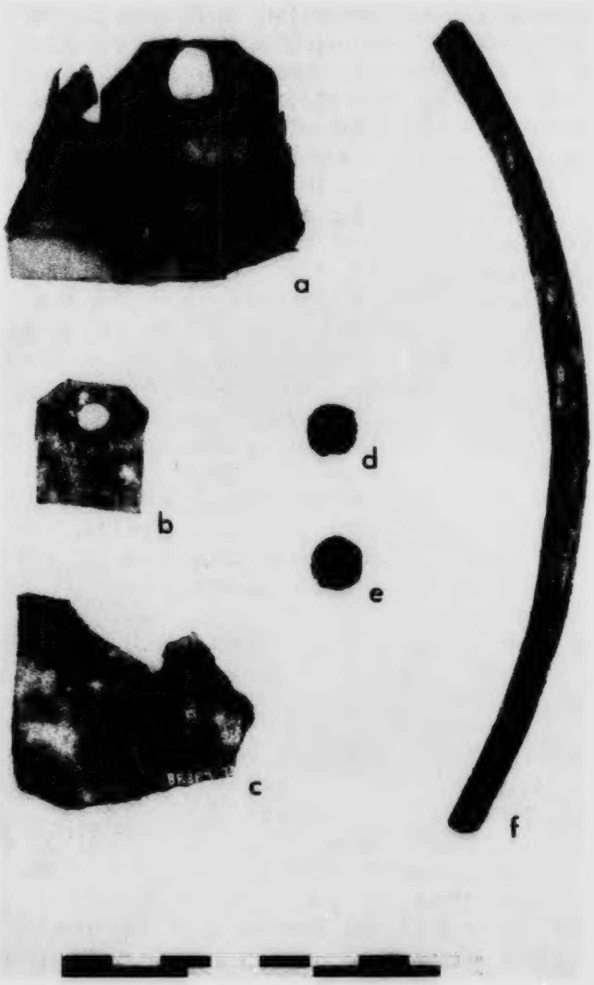

Figure 67. Yellow metal kettle fragments: a-b, folded sheet brass rim lugs; c, copper kettle cover fragment with lug remnant; d-e, rivets; f, rim reinforcing rod fragment. (Photo by R. Chan.)

Rivets. The two rivets (Fig. 67d-e) are of the type commonly used to attach lugs to kettles and kettle covers. They have flat, circular heads 10.7 - 11.3 mm in diameter. Both are tinned and have been used. They were found in fairly close proximity to each other and may have come from the same object.

Kettle Covers

The collection contains the remains of at least three objects tentatively identified as kettle covers. One of these is made of copper while the others are tin plate.

Copper

The copper specimen is very fragmentary, consisting of an incomplete copper lug attached to a 62-mm long, 45-mm wide and 0.5-mm thick piece of untinned sheet copper (Fig. 67c). Nevertheless, the indication is that it was of the shallow "dish" variety which has a slightly convex top, relatively low, vertical sides and a rolled, reinforced rim (Woolworth and Birk 1975: 63, 91). The lug is of the "dog-bone" variety which consists of two ovate discs connected by an arc (Woolworth and Birk 1975: 59, 92). The single disc that remains on the Nottingham House specimen is 23.9 mm long, 17.7 mm wide and about 2.6 mm thick. It is affixed to the cover with a copper rivet that has a flat head 10.3 mm in diameter.

Tin Plate

There are at least two and possibly as many as four tin plate objects that appear to have been in the form of shallow, circular basins with flat or slightly curved bottoms and perpendicular to everted sides (Fig. 68a). The objects seem to have been 15.5 - 28.0 mm (21.2 mm mean) deep and approximately 380 mm in diameter. They have 2.6 - 5.2-mm (4.3 mm mean) high folded rims reinforced with curved strips of sheet iron that protrude slightly from the folds. The latter are on the concave sides of the objects. The metal composing the artifacts is 0.6 - 0.9 mm (0.8 mm mean and mode) thick. One of the objects has been intentionally flattened and exhibits several cut edges (Fig. 68b). The similarity of the aforegoing artifacts to a copper kettle cover illustrated by Woolworth and Birk (1975: 63, figure) suggests that the former may have served a like purpose.

Kettle Hook

This 117.5-mm long kitchen utensil consists of a 230-mm long section of 5.2 - 5.9-mm diameter ferrous metal wire bent into a roughly S-shaped configuration (Fig. 60e). It has a 56-mm deep and 28.0 - 31.6-mm wide hook at one end and a recurved hook with a depth of 21.7 mm and a width of 12.8 - 18.2 mm at the other.

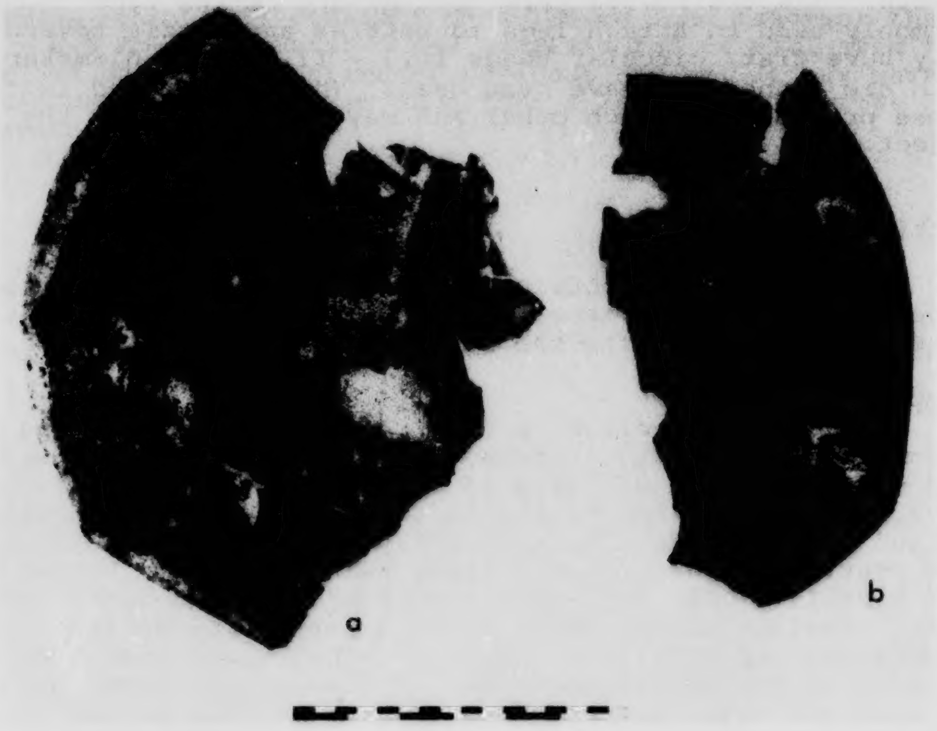

Figure 68. Tinned sheet iron objects believed to be kettle covers (b has been intentionally flattened). (Photo by R. Chan.)

Kitchen (Butcher) Knives

The three knives making up this category have fixed blades primarily suited for general kitchen use. However, in a frontier environment, it is highly likely that they functioned as multi-purpose tools. The recovered specimens can be characterized as having (1) fairly rigid, tapered, V-grind blades with straight to slightly concave backs and concave cutting edges; (2) distinct choils (sometimes referred to as heels) at an obtuse angle to the cutting edge of the blade; and (3) half tangs with either parallel or slightly divergent sides and rounded butt ends.

The most complete specimen is missing only the handle scales and associated rivets (Fig. 69a). It is 207.6 mm long overall and has a 164.3-mm long blade with a slightly concave back and a convex cutting edge. The blade has a blunt point, and is 28.9 mm wide and 2.9 mm thick at the tang. The choil is approximately 14.4 mm long and at an angle of about 114 degrees to the cutting edge. The 43.3-mm long by 14.9-mm wide tang has roughly parallel sides. It contains three rivet holes 2.2 - 2.5 mm in diameter.

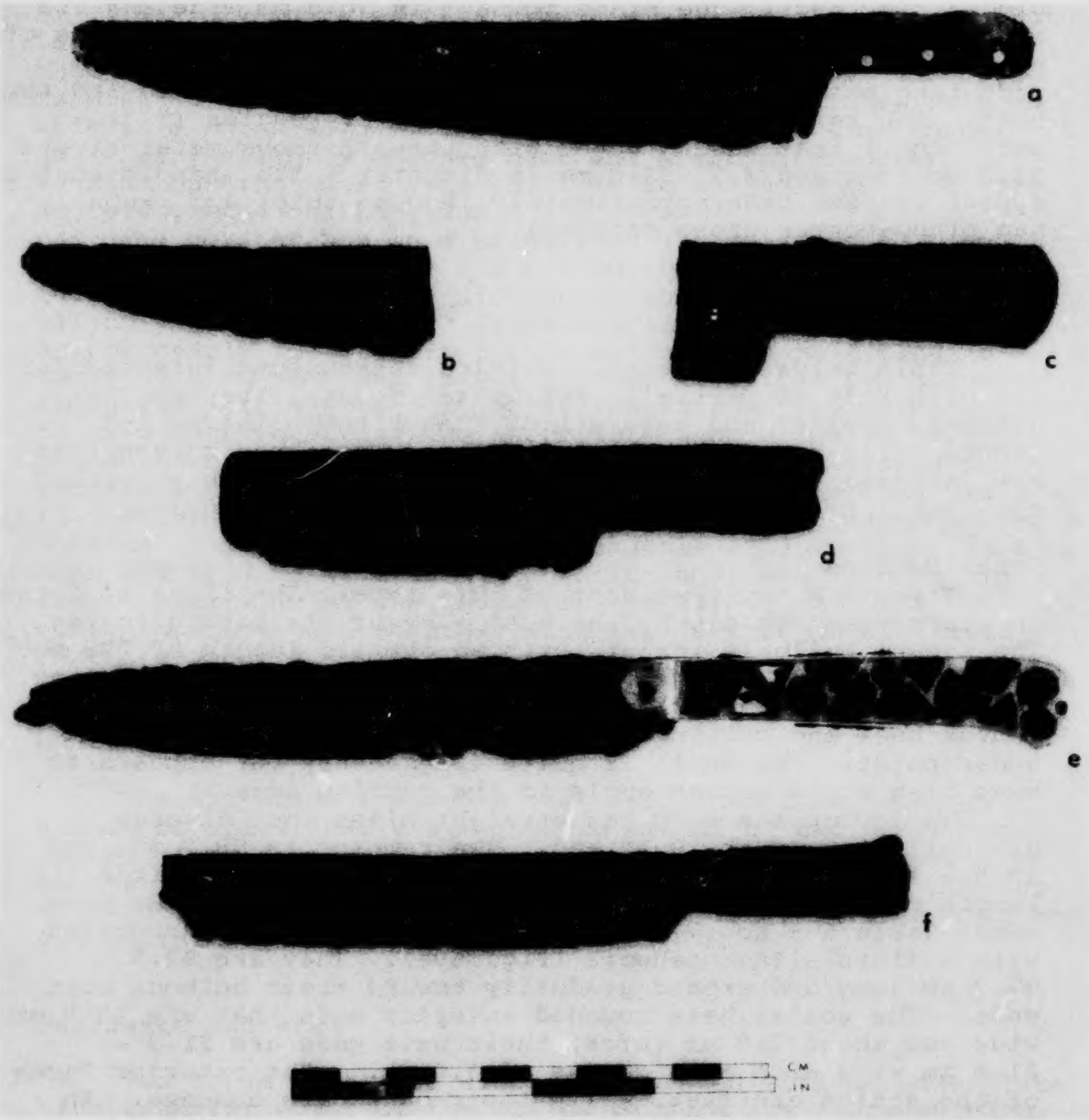

Figure 69. Fixed blade knives: a, intact kitchen knife blade; b-c, kitchen knife fragments; d, intentionally truncated kitchen knife blade apparently used as a canoe knife; e, table knife with ornamental yellow metal handle; f, table knife with wooden handle (the butt end of the handle has been removed for analysis). (Photo by R. Chan.)

An identical specimen of the aforementioned knife is apparently represented by a 90-mm long point fragment (Fig. 69b).

The third knife is missing the anterior portion of its blade (Fig. 69c). The blade remnant is 30.0 mm wide and 2.3 mm thick. It has an 11.2-mm long choil that is at an angle of about 104 degrees to the cutting edge. The 19.2 - 22.6-mm wide tang has straight sides which diverge slightly toward the butt. The knife had a softwood handle (A. Douglas 1977: pers. com.) that was attached with three ferrous metal rivets 22.3 mm long and 2.7 - 3.0 mm in diameter. The handle scales appear to have been approximately 10.0 mm thick and probably had plano-convex cross sections.

Table Knives

Table knives are simple slicing instruments intended for use with soft or partially fragmented foods. They are slightly smaller and less sturdy than kitchen knives and occasionally have ornamental handles. The three knives that are assigned to this category are of two types: those with ornamental brass handles and those with wooden handles.

Brass Handled

There are two specimens of this type. The first of these is represented solely by the butt ends of its handle scales. The second knife is intact, with an overall length of 228 mm (Fig. 69e). Its tapered, V-grind blade is about 142 mm long, and 22.7 mm wide and 3.2 mm thick at the rear. The broadly convex back and cutting edge curve in gradually to form a spear point. The choil is quite fragmentary but appears to have been at an obtuse angle to the cutting edge.

The incomplete tang has straight sides that diverge gradually toward the butt end. The remnant is 58.2 mm long, 13.5 - 16.3 mm wide and extends approximately two-thirds the length of the handle. The cast brass (H. Unglik 1978: pers. com.; Table 5 - No. 77-3619A-B) handle scales are decorated with a floral-like openwork (Fig. 69e). They are 97.0 - 97.2 mm long and expand gradually toward their bulbous butt ends. The scales have rounded anterior ends that are 13.5 mm wide and about 2.0 mm thick; their butt ends are 21.3 - 21.6 mm wide with a thickness of 3.0 mm. The exterior faces of the scales are flat, while their backs are concave. An inlay of what appears to be tortoise shell or horn is set into the back of each scale and fills the decorative openings therein. The material is a mottled, light olive brown (2.5Y 5/4) to very dark grayish brown (10YR 3/2), has a laminated structure and emits a smell like that of burning hair when ignited. Each inlay seems to have been bonded to a thin leather strip which may have served as a buffer between the inlay and the tang. The scales were secured to the tang with two ferrous metal rivets. A third rivet held the butt ends of the scales together. The rivet remnants are about 2.3 mm in diameter.

Wooden Handled

The only knife of this type has a fragmentary blade that is separated from its relatively intact handle by a bolster that is an intergral part of the tang (Fig. 69f). The blade is missing its point. The remnant is 112.4 mm long, 20.5 mm wide at a point 43.5 mm from the bolster and 2.4 mm thick. It has a very slightly concave back and a slightly convex, V-grind cutting edge. The choil is at an angle of about 123 degrees to the cutting edge.

The bolster has an oval outline and measures 13.0 mm high, about 10.7 mm wide and 6.3 mm thick. Its posterior faces are flat and perpendicular to the tang. The very slightly concave anterior faces are at an angle of approximately 133 degrees to the blade. The half tang is about 46.0 mm long and 13.0 - 13.7 mm wide. It has straight sides that diverge very slightly toward the butt which appears to have been rounded. The incomplete wooden scales have plano-convex cross sections and expand in both width and thickness toward the butt end. They are 56.0 mm long, 14.0 - 17.5 mm wide and 5.2 - 9.3 mm thick. The foregoing components make up an oval-sectioned handle that is 62.3 mm long, 13.0 mm high and 10.7 mm wide at the anterior end, and 17.5 mm high and 15.9 mm wide at the incomplete posterior end. The components are held together with two ferrous metal rivets that are about 2.5 mm in diameter.

Unattributable Knife Blade Fragments

The two blade fragments that fall into this category cannot be specifically assigned to either of the preceding groups. Both specimens are from blades with sharp, narrow points. They have straight backs and convex, V-grind cutting edges. The largest fragment is 24.3 mm long, 11.3 mm wide and 1.4 mm thick.

Pearlware Saucers

Two large pearlware saucers decorated with an underglaze blue transfer print of the willow pattern are represented by two large composite sherds (Fig. 70a-b) and 15 lesser fragments. Produced in Staffordshire, England, by throwing and turning, these objects were approximately 180 mm in diameter at the rim and about 80 mm in diameter at the base. Both saucers have a vertical footring and no well. One of them has a workman's mark "x" in underglaze blue on the base (R. Whate 1978: pers. com.).

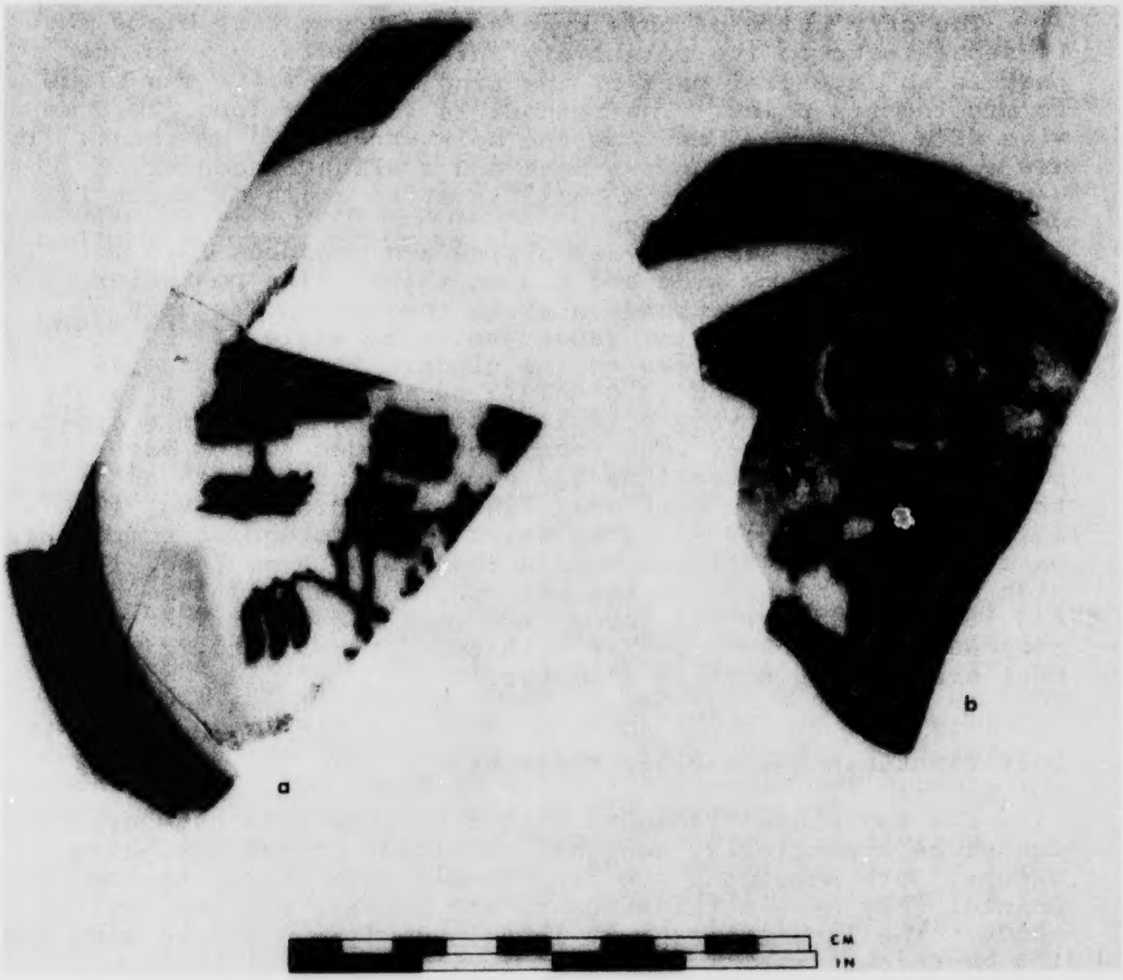

Figure 70. Willow pattern pearlware saucer fragments. (Photo by R. Chan.)

Glass Stemware

An incomplete stemmed vessel (Fig. 58b) of colourless lead glass stands 62 mm high. It is of two-piece construction, the bowl and stem having been fashioned separately from the foot. A distinct seam marks the junction of the two pieces. The bowl is extremely fragmentary but was probably trumpet- or funnel-shaped (Brown 1971: 104). The plain stem is 34 mm long and 12 mm in diameter at the middle. The slightly conical foot is plain and about 64 mm broad. An unfinished, circular pontil mark occupies its centre.

Unidentified Glass Tableware

Eight fragments of colourless lead glass tableware are too small to be functionally categorized. Two of them are decorated; the others are plain.

Decorated Glass

One of the decorated pieces is engraved, while the other has cut designs.

Engraved. A small, curved piece of 1.3 mm thick glass is decorated with a wheel-engraved design consisting of narrow, undulating bands emanating from an area filled with rectilinear elements (Fig. 71a). The curvature of the sherd reveals that the portion of the vessel that is represented was approximately 90 mm in diameter.

Cut. The one curved fragment of cut glass is covered with remnants of five ovate elements estimated to have been about 22.8 mm long and 12.7 mm wide. The elements have angular cross sections and longitudinally fluted centres. Three of the ovals emanate from a common point, intimating that they may have formed a floral design (Fig. 71b).

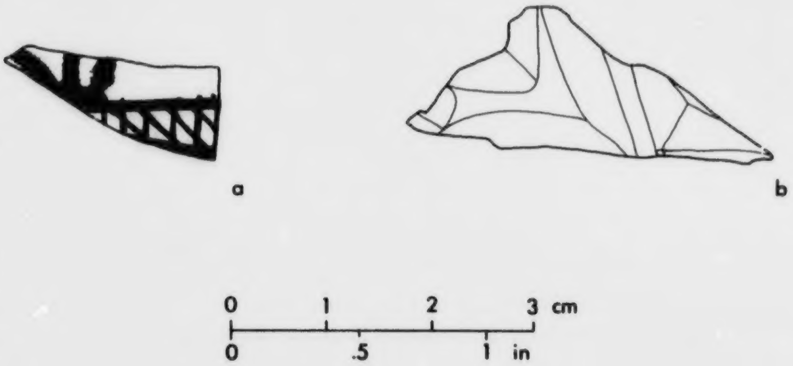

Figure 71. Decorated glass tableware fragments: a, wheel-engraved glass; b, cut glass. (Drawing by S. Epps.)

Plain Glass

Six thin (0.5 - 0.7 mm) pieces of plain, curved glass are all from the same vessel. Three of the fragments have a single bevelled edge.

Cask Fragments

Casks are represented by several wooden components, as well as a number of hoop fragments.

Head and Stave Fragments

One head and several staves were encountered in the sub-floor pit in Room C of the main house. They are made of oak, probably white oak (Quercus alba; A. Douglas 1977: pers. com.). The head was about 185 mm in diameter and consisted of two disproportionally sized cants held together with two dowels. The larger cant was relatively intact (Fig. 72a), and 185 mm long, 110 mm wide and 7.3 mm thick. The other was fragmented but is estimated to have had the same length and thickness and a width of about 75 mm. The perimeter of the head was bevelled on one side.

The staves were deteriorated for the most part. Only one of them appeared to be complete. It was 548.6 mm long, 88.4 mm wide and 9.1 mm thick. Another stave was 52.5 mm wide and 9.9 mm thick. The rest were too decayed to provide any meaningful measurements. The staves had squared ends, and a square croze groove about 2.0 mm wide is situated 15 mm from the intact end of one fragment (Fig. 72b).

Hoop Fragments

The site produced 43 ferrous metal cask hoop fragments. Ten of these consist of two straps joined together with a single rivet. Another eight are strap segments that have a single rivet or rivet hole in them. The rest are plain straps. Based on the number of intact hoop joints and joint components, the indication is that at least 14 hoops are represented. The fragments indicate that all but one of the hoops had squared ends (Fig. 72c). The exception had a squared end on the exterior (convex) side and a rounded end on the interior (Fig. 72d). The flat heads of the rivets were all on the interior sides of the hoops.

Twenty-seven of the hoop fragments are unaltered. These are 23 - 545 mm (117 mm mean) long, 21.7 - 40.2 mm (27.9 mm mean) wide and 1.6 - 3.0 mm (2.2 mm mean and 2.0 - 2.1 mm mode) thick. The other 16 have been modified in several ways. Two of them have been cut almost all the way through along their centres with a chisel. Another four which were similarly cut have been folded along the incision and then hammer welded. These pieces are 145 - 289 mm long, 13.2 - 16.4 mm wide and 2.5 - 3.4 mm thick. The remaining specimens are 20 - 252-mm (88 mm mean) long and 12.2 - 18.2 mm (15.4 mm mean) wide sections of hoops that have been cut in half longitudinally using a chisel.

Funnel (?) Fragment

What appears to be an incomplete funnel spout (Fig. 60f) formed from 0.3-mm thick tinned sheet iron (M. Tugeau 1976: pers. com.) was found in the sub-floor pit in Room C of the

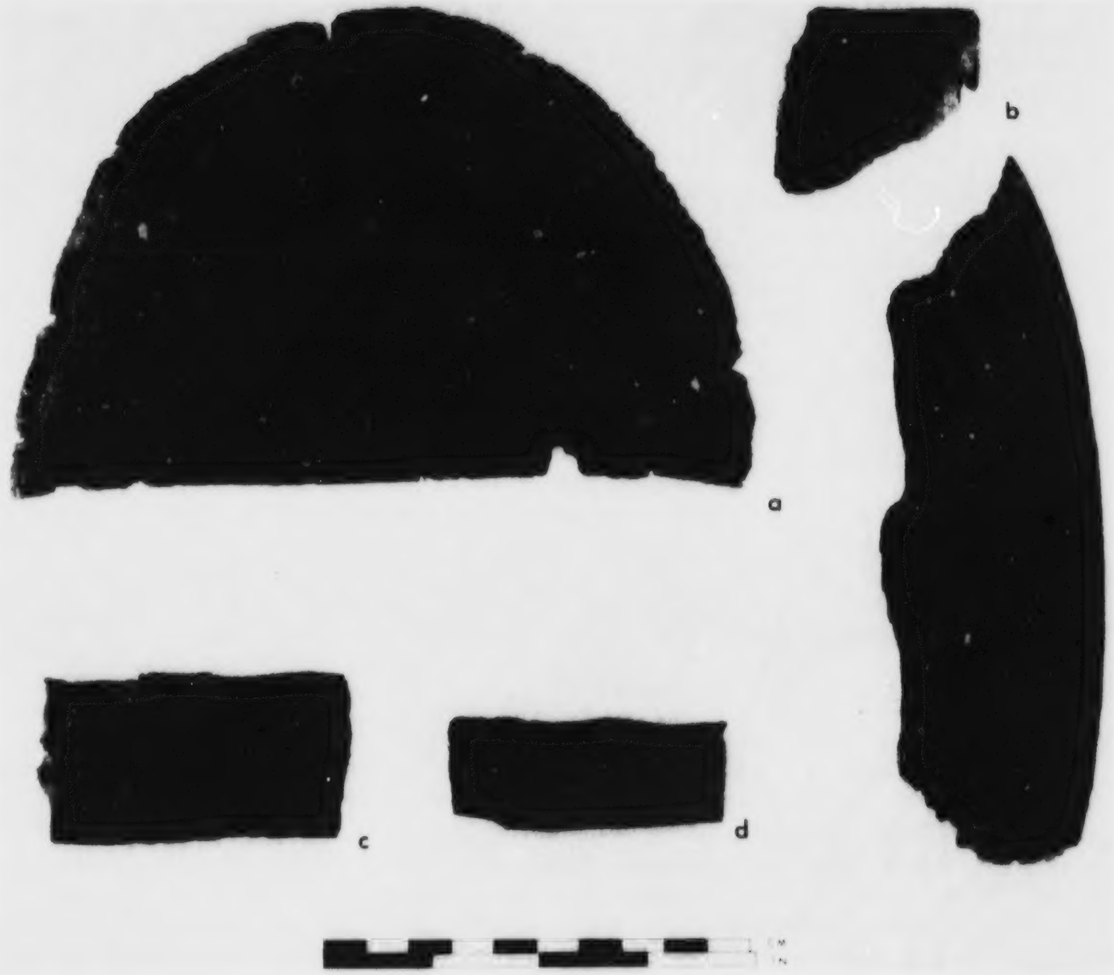

Figure 72. Cask components: a, cask cant; b, cask stave remnant; c, hoop joint with squared ends; d, hoop joint with rounded interior end. (Photo by R. Chan.)

main house. The artifact consists of a 50.5-mm long, tapered tube 15.0 mm in diameter at the intact end and a maximum of 19.3 mm in diameter at the other. The edges of the sheet overlap at the soldered seam.

Furniture Lock

The lock, all of whose components save one (a ferrous metal pin) are made of cast brass (H. Unglik 1978: pers. com.; Table 5 - No. 77-3593), is missing a corner but is otherwise complete. The ornamental front or main plate (Fig. 60g) is 48.7 mm long, 36.3 mm wide and 1.0 mm thick. It has a polished, slightly convex front with bevelled edges and a slightly concave, unaltered back. A keyhole 9.6 mm high by about 5.6 mm wide is situated in the lower centre of the plate and a rectangular hole 8.0 by 4.1 mm is in the upper centre. Each of the projecting corners has a 1.8 - 2.4-mm diameter hole in it.

The lock's cover plate is rivetted to the back of the main plate (the two rivets consist of pins that project from the back of the main plate and are an integral part thereof) and partially covers and secures an angular J-shaped bolt 24.1 mm long oriented parallel to the long axis of the main plate. The bolt has a concavity in the approximate centre of its lower edge and a rounded protuberance at the lower left-hand corner. It was held in the open and closed positions by a small, rectangular leaf spring attached to a small projection at the upper right-hand corner of the cover plate with a ferrous metal pin.

Locks such as this one were commonly used on small chests in conjunction with a hinged hasp element. The lock was inset in the upper edge of the article's body and the hasp element was affixed to the lid. The free end of the hasp had a slotted tenon projecting from its inner face which fit into the aperture above the keyhole in the main plate. To lock the article, a key was inserted in the keyhole and turned to the left (viewed from the front), whereupon the blade of the key engaged the concavity in the lower edge of the bolt. As the key continued to be turned, the bolt was simultaneously lifted and pushed to the left, causing the rounded stop at its lower left corner to clear the adjacent portion of the cover plate and the protuberant arm to slide into the slot in the hasp tenon.

Copper Hinges

Both of the recovered hinges are rectangular in outline and composed of two interlocking pieces of folded, 0.3 - 0.35-mm thick sheet copper containing 1-2 per cent lead and traces of silver and bismuth in one case, and only traces of silver and lead in the other (H. Unglik 1978: pers. com.). The folded edge of one sheet has three loops and two gaps which mesh with two loops and three gaps in the corresponding edge of the other sheet. The two are held together by a ferrous metal pivot pin that passes through the loops. A circular hole is located in either end of each side.

One of the hinges is slightly distorted, having had its sides unfolded, but appears to have been 42.2 mm long parallel to the pivot pin and about 35.2 mm wide (Fig. 60k). The symmetrical sides of the hinge have 7.7 - 9.0-mm long loops in their edges and 3.7 - 4.7-mm diameter holes in their ends.

The other, slightly smaller, specimen (Fig. 60i) is 40.5 mm long parallel to the pin and 23.2 mm wide. Its asymmetrical sides are 8.7 and 18.0 mm wide and have 2.1 - 2.4-mm diameter and 3.4 - 3.8-mm diameter holes in them, respectively. The loops in the edges are 6.6 - 10.0 mm long. The pivot pin is about 2.8 mm in diameter.

Considering their relatively small size, the above hinges were probably used to attach lids to such items as boxes and small chests.

Thimbles

There are two thimbles, both of which are of the open top variety. Called "tailor's thimbles," they permit the tip of the finger or thumb to feel the needle and the material being sewn (Lundquist 1970: 10). One of the specimens is made of yellow metal, while the other is of composite construction.

Yellow Metal

The yellow metal specimen appears to have been made from a regular thimble by grinding off the top (Fig. 60j). The object is tapered and has been fashioned from 0.3 to 0.4-mm thick sheet metal. It is 12.5 mm high, and has an exterior diameter of 12.1 mm at the top and 15.5 mm at the base. The latter has a plain border about 3.5 mm wide. The rest of the thimble is covered with small, round indentations which reveal that the item was used for light sewing.

Composite

The composite thimble is larger and has a rolled, ferrous metal outer layer with a brazed seam and a very thin yellow metal lining (Fig. 60k). The tapered body is 15.7 mm high, 17.0 - 20.0 mm in diameter and has 1.3-mm thick walls. A 3.0-mm wide, plain band encircles the base. The upper portion is extremely corroded but exhibits several large, round indentations. These suggest that the thimble was utilized in the sewing of thick fabrics.

Needle

The tip of what appears to be a specialized ferrous metal needle (Fig. 60l) was found in pit A. The 40.7-mm long specimen has a sharp point and a plano-convex cross section. It is 1.2 mm thick and 1.9 mm wide.

Thermometer Tube

This object, represented by a 48.6-mm long basal fragment, is composed of clear, non-lead glass. The specimen

(Fig. 60m) is 4.5 mm in diameter along most of its length but swells to 5.4 mm at the teardrop-shaped reservoir. There are no markings on the tube.

Tinned Sheet Iron Handles

Two incomplete, curved, slightly different strap handles (Fig. 60o-p) fashioned from 0.3-mm thick tinned sheet iron (M. Tugeau 1976: pers. com.) were found in the main house. They are 62 - 93 mm long, 9 - 10 mm wide at their intact basal ends and 16 - 18 mm wide at their fragmentary upper ends. Their sharp edges have been eliminated by folding them over onto the concave sides of the handles for a distance of 3.1 - 5.7 mm. The folds of one handle are reinforced with ferrous metal wire. As a result, the convex outer face of the specimen has a rounded ridge along either side (Fig. 60o). A small tab that was once soldered to the objects that the handles came from is located at the basal end of each specimen. One is tapered while the other has had its corners cut off to eliminate the sharp points. Handles of this size and type have been noted on such items as cups, small pitchers and candle moulds (personal observation).

Tinned Sheet Iron Lug

The lug, which measures 53.6 by 21.9 mm, consists of a folded piece of 0.4-mm thick tinned sheet iron with a tubular hollow about 0.5 mm in diameter extending along the fold (Fig. 60n). The hollow most likely accommodated the ends of a wire handle. The lug is very slightly curved and its lower corners have been cut off to eliminate the sharp points. Two ferrous metal rivets with flat heads 7.0 mm in diameter secured the lug to whatever object it was a part of.

Red Ochre

Two specimens of a soft, red (10R 4-5/8), earthy substance appear to be red ochre. The material is composed primarily of calcium carbonate with lesser amounts of hematite and quartz (C. Costain 1977: pers. com.). The hematite imparts the red colour, while the other two compounds are bulking agents.

Subsistence and Defence

Gun Screw

The hand-wrought screw is incomplete, the extreme end of the shank having been broken off (Fig. 73a). The remnant is 50.6 mm long and has a circular fillister head with a slotted, very slightly convex top, slightly convex sides and a flat bottom. The head is 9.2 - 9.9 mm in diameter and 3.6 mm

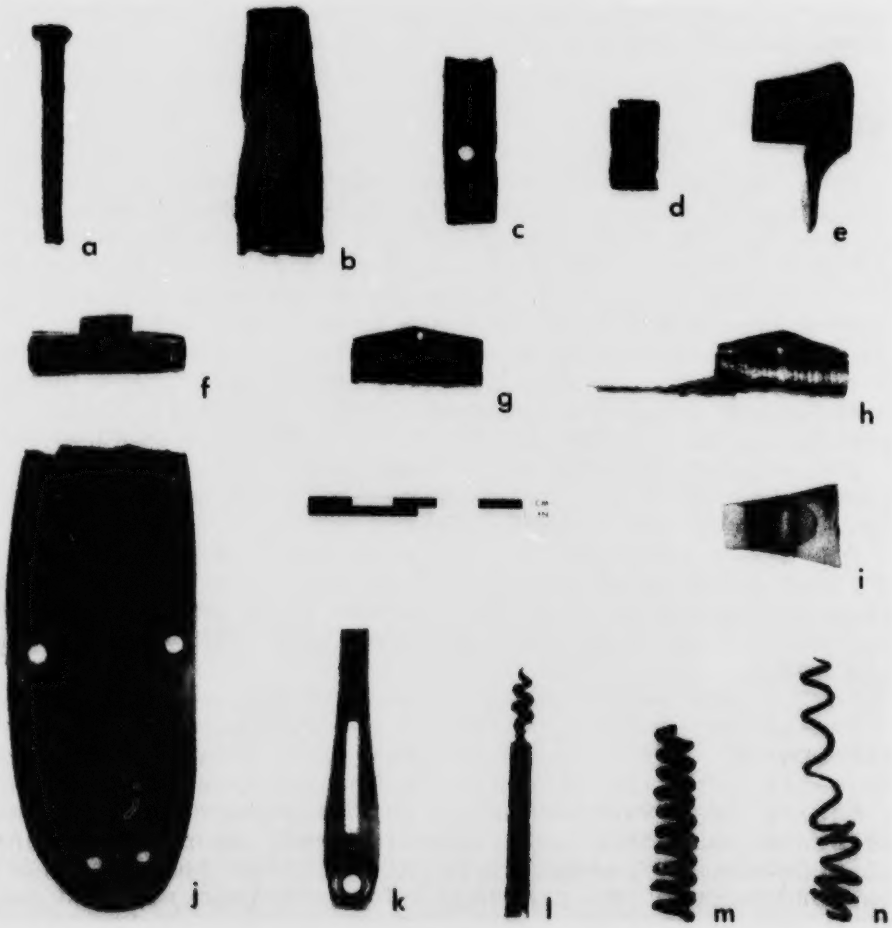

Figure 73. Gun parts and accessories: a, tang or side plate screw; b, gun barrel fragment; c, barrel tang marked "ID"; d, barrel lug; e, pistol (?) trigger; f, plain ramrod thimble; g-h, multi-ribbed ramrod thimbles; i, trigger guard fragment; j, butt plate; k, trigger plate; l, socket gun worm; m-n, wire gun worms. (Photo by R. Chan.)

thick. The circular shank is 5.6 mm in diameter directly beneath the head but tapers to 5.0 mm at the opposite end. The upper part of the shank has three small notches cut into it. The threaded portion of the screw begins 41.6 mm from the head and is 4.6 mm long. The size and shape of the specimen indicate that it served as either a tang screw or a side plate screw.

Barrel Fragment

A 56 mm long mangled iron tube with one flat end and one jagged end appears to be a section of a smoothbore gun barrel (Fig. 73b). Its walls are 1.8 mm thick. The specimen was too deformed for the bore diameter to be determined.

Barrel Tangs

Both of the recovered specimens have been broken from the breech plugs that they were attached to. The tangs are 39.0 - 39.5 mm long and have squared ends. Each specimen has a threaded screw hole about 4.0 - 4.6 mm in diameter in its approximate centre. One of the tangs is parallel sided while the other has sides that diverge toward the intact end. The former specimen is 13.0 mm wide, and 4.9 mm thick at the broken end and 3.3 mm thick at the other end. Its upper surface is very slightly curved longitudinally, while the underside is flat. The bold initials ID have been stamped into the underside near the breech end (Fig. 73c). A barrel tang with the same lettering was also discovered at Fort George, Alberta (Kidd 1970: 73).

The other tang is 13.0 mm wide and 5.8 mm thick at the break, and 14.9 mm wide and 3.4 mm thick at the intact end. It is distinctly curved with the convex side uppermost. The letter D has been stamped into the lower surface near the broken end.

Barrel Lug

Barrel lugs were attached to the undersides of gun barrels and served to hold them to their stocks by means of metal wedges that passed through a slot in the forestock and a corresponding slot in the lug. The specimen at hand is made of ferrous metal (Fig. 73d). It has a rectangular base 21.4 mm long, 11.9 mm wide and 1.0 mm thick. The upper (tenon) side of the base has bevelled edges. The ends are sharp and bent down slightly. The tenon that projects from the base is 16.6 mm long, 4.2 mm wide and 4.4 mm high. It contains a rectangular opening 10.5 by 2.7 mm.

Trigger

The trigger has a pivot plate 24.0 mm long, 19.4 mm wide and 1.9 mm thick somewhat trapezoidal in outline (Fig. 73e). Its upper edge is slightly concave, the basal edge is flat, and the other two sides are slightly convex. The two rear corners of the plate are angular, while the corner adjacent to the pivot pin is rounded. The pin is 30.7 mm long and 1.7 mm in diameter.

The trigger pull is 23.4 mm long, 10.4 mm wide and 2.9 mm thick at the lower end. It has a truncated elongate-ovate outline, a concavo-convex longitudinal section and a plano-convex cross section. The bottom third of the pull is roughly perpendicular to the basal edge of the pivot plate. The size of the trigger suggests that it may have come from a pistol rather than a musket or rifle.

Trigger Plate

This cast brass (H. Unglik 1978: pers. com.; Table 5 - No. 77-3582) item is 65.0 mm long, up to 13.8 mm wide and 2.1 - 2.4 mm thick. It is practically flat and has sides that bulge outward near the front end and then converge toward the rear (Fig. 73k). The ends are flat and, like the sides, are bevelled to some degree. The broad end of the plate has a threaded screw hole in it about 4.6 mm in diameter. A tubular extension 5.6 mm high with a maximum exterior diameter of 9.0 mm projects from the back of the hole. As a result, the hole has an overall depth of 8.0 mm and would have accommodated the tang screw of the gun that it was attached to. The trigger slot is in the approximate centre of the plate and measures 25.7 mm by 2.6 - 3.0 mm.

Trigger Guard

This cast brass (H. Unglik 1978: pers. com.; Table 5 - No. 77-3570) artifact is fragmentary, being represented by a 28-mm long bow/rear tang section (Fig. 73i). The piece has a biconvex cross section and practically straight sides that diverge toward the bow end. Its 11.1-mm wide by 3.4-mm thick tang end is broken, while the 20.0-mm wide and 3.1-mm thick bow end has been cut. A slight ridge extends along either side of the exterior face of the bow, and a broad, curved, forward-projecting spur is located on the interior surface at the juncture of the bow and rear tang.

Butt Plate

The cast brass (H. Unglik 1978: pers. com.; Table 5 -

No. 77-3601) butt plate is incomplete, the tang and heel having broken off. The remnant is 112 mm long, 44.4 mm wide and 1.3 - 1.8 mm thick. It has a rounded toe and is perforated by six nail holes set in three horizontal rows (Fig. 73j). The holes appear to have been drilled into the plate but were all subsequently distorted to some extent by having square nails driven into them. The exterior face of the plate has been filed smooth; the edges and the back are unaltered. After it was scrapped, the object was bent into an arc.

Ramrod Thimbles

Two varieties of yellow metal ramrod thimbles are present in the collection.

Plain

The first variety, represented by one specimen, has a plain body with a raised, 1.8-mm wide rib at either end (Fig. 73f). The thimble is formed from 0.04-mm thick sheet brass (H. Unglik 1978: pers. com.; Table 5 - No. 78-2147), and measures 36.2 mm long and about 9.6 mm in diameter. A perforated, rectangular tenon 12.2 mm long, 3.9 mm high and about 3.1 mm thick is situated at the upper centre of the thimble. The perforation contains the remnant of a 1.9-mm diameter ferrous metal pin that once held the thimble in place. Three small notches have been cut into the thimble near the tenon.

Multi-Ribbed

The second variety is represented by two upper or intermediate thimbles (Fig. 73g) and one terminal thimble (the one situated at the point where the ramrod enters the stock; Fig. 73h). The upper/intermediate thimbles have been stamped from 0.03 to 0.05-mm thick sheet brass (H. Unglik 1978: pers. com.; Table 5 - No. 78-2143). They are 28.2 - 31.0 mm long and 10.6 - 10.9 mm in diameter. Their cylindrical bodies are decorated with 11 raised ribs: there are two narrow ribs at either end separated from two others by a broad rib; the remaining rib is angular and encircles the middle of the thimble. A perforated, triangular tenon is located at the top of each specimen. The tenons are 3.8 - 4.0 mm high, 1.0 - 1.2 mm thick and extend the full length of the thimble. The hole in the approximate centre of each tenon is 1.5 - 1.6 mm in diameter. One of the holes contains the remnant of a ferrous metal pin. Three to five notches have been cut into the thimbles near the tenon.

The terminal thimble consists of an upper or intermediate thimble soldered to a triangular, cast yellow metal tang (Fig. 73h). The specimen measures 60.5 mm overall. The cylindrical portion is 31.4 mm long and about 10.5 mm in diameter. The triangular tenon is 5.8 mm high, 1.0 mm thick and has a 1.8 mm diameter hole in it. The tang has been salvaged from another terminal thimble. It is 35.5 mm long, and 11.0 mm wide and up to 2.0 mm thick at the base. Five notches have been filed into one of its bottom edges.

Gun Worms

There are two types of ferrous metal gun worms in the collection. They served to remove balls, wadding, and other obstacles from the barrels of muzzle-loading firearms.

Socket Gun Worm

The solitary socket worm (Fig. 73l) is 57.3 mm long overall. It has a hollow, tapered shank that is 40.4 mm long and 4.5 - 6.0 mm in diameter. The 33.9-mm deep socket is lined with a very thin (about 0.02 mm) sheet of yellow metal. The corkscrew tip is 16.9 mm long and has a maximum diameter of 5.9 mm. The wire making up the tip is 2.0 mm in diameter at the base but gradually tapers to a sharp point. The relatively small size of the tip suggests that the worm was intended for use with a small rifle or pistol (Dixie Gun Works 1976: 235).

Wire Gun Worms

The two wire worms, one fragmentary and the other intact, simply consist of slightly tapered, spiral coils of ferrous metal wire. The intact specimen (Fig. 73n) is made of 16-gauge (1.6-mm diameter) wire. It is twisted out of shape but appears to have been approximately 8.0 mm in diameter at the narrow end and 11.5 in diameter at the other. The fragmentary specimen (Fig. 73m), made of 13-gauge (2.3-mm diameter) wire, is missing a portion of its narrow end. The remnant is 45.0 mm long and 9.6 - 10.2 mm in diameter. These worms were made for use on the plain ramrods of trade muskets (Anonymous 1969: 9).

Gunflints

The recovered gunflints are of two types: those made of sections of blades struck from prepared polyhedral cores, and those formed from individual flakes struck from irregular, unprepared cores. Both types are made of translucent, dark brown (10YR 3/3) flint which appears dark gray (10YR 4/1) to black (10YR 2.5/1) in reflected light. The flints are of English origin, as evinced by the presence of a demi-cone of percussion on one or both sides of most of the specimens (Witthoft 1966: 36). The terminology used is based on Skertchly (1879: 46; Figs. 74 and 75).

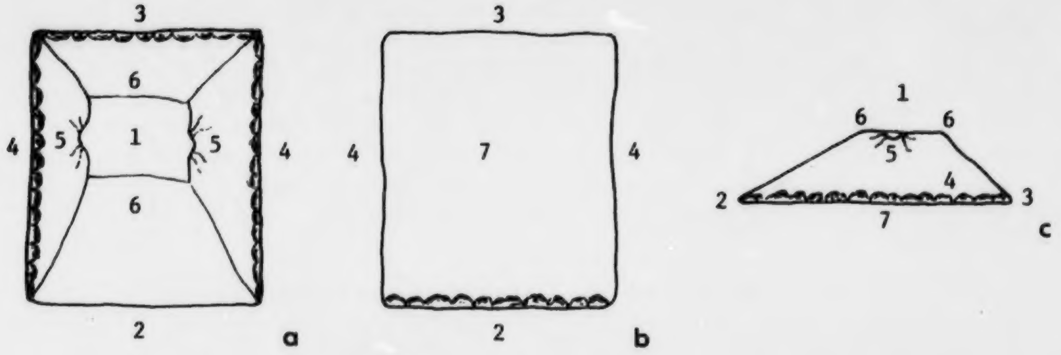

Figure 74. Blade gunflint terminology: a, back view; b, face view; c, side view. (1, back; 2, edge; 3, heel; 4, side; 5, demi-cone of percussion; 6, rib; 7, face.) (Drawing by S. Epps.)

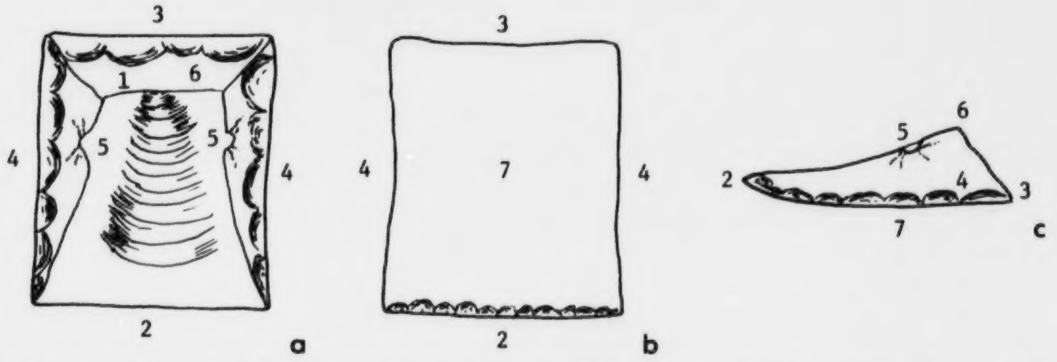

Figure 75. Spall gunflint terminology: a, back view; b, face view; c, side view. (1, bulb of percussion; 2, edge; 3, heel; 4, side; 5, demi-cone of percussion; 6, rib; 7, face.) (Drawing by S. Epps.)

Blade Gunflints

This type (Fig. 76a-h) is represented by 19 specimens. The flints are square to rectangular in outline and have trapezoidal longitudinal cross sections. They are all single-edged, that is, each flint has only one sharp striking edge. The heels, sides and striking edges of the flints exhibit varying degrees of secondary percussion flaking performed during the knapping process. The heels and sides were knapped with the faces of the flints uppermost, while the edges were trimmed with the backs turned up. As a result, secondary flake scars are present on the sides and heels of the flints, and on the undersides of the striking edges. A demi-cone of percussion is present on one side of ten flints and on both sides of another seven specimens. The two remaining flints, one fragmentary and the other intact, do not have distinct demi-cones.

Three of the flints are made of dark gray flint, five are made of lightly spotted black flint, seven are a uniform black colour and the remainder are light gray as a result of being burned. A cortex remnant is present on the heel of one of the black specimens (Fig. 76f). Eight of the flints show no signs of use. Another two have battered perimeters, apparently as a result of having been used with fire steels (Fig. 76g-h).

The blade flints are 26.5 - 30.9 mm long, 20.4 - 25.2 mm wide and 4.1 - 8.6 mm thick. Two sizes seem to be represented (Table 13).

Table 13. Measurable Blade Gunflint Dimensions (mm) and Size Groups (N = 18)

Width	Length	Thickness	Probable English Size+
20.4	22.0*	6.6	Pistol (Military)
21.5	26.5	4.1	" "
21.6	27.6	5.2	" "
21.7	26.5*	7.4	" "
22.0	21.6*	6.3	" "
22.1	23.5*	6.5	" "
22.7	29.4	7.9	Carabine
23.0	18.2*	6.1	"
23.0	29.1	8.6	"
23.4	28.2	7.3	"
24.5	25.5*	4.6	"
24.5	27.6	7.5	"
24.5	28.0	6.9	"
24.7	26.4*	6.6	"
24.7	30.9	8.0	"
25.0	27.8	5.1	"
25.1	30.7	6.7	"
25.2	27.9	7.8	"

+ Based on Rees (1819: Vol. 14, "Flint").
* Incomplete measurements.

Spall Gunflints

These flints (Fig. 76i-p), also known as "gunspalls" (Hamilton 1960: 76) and "wedge-shaped gunflints" (Witthoft 1966: 25-28), are represented by ten specimens, four of which have not been used. Three of the flints are dark gray in

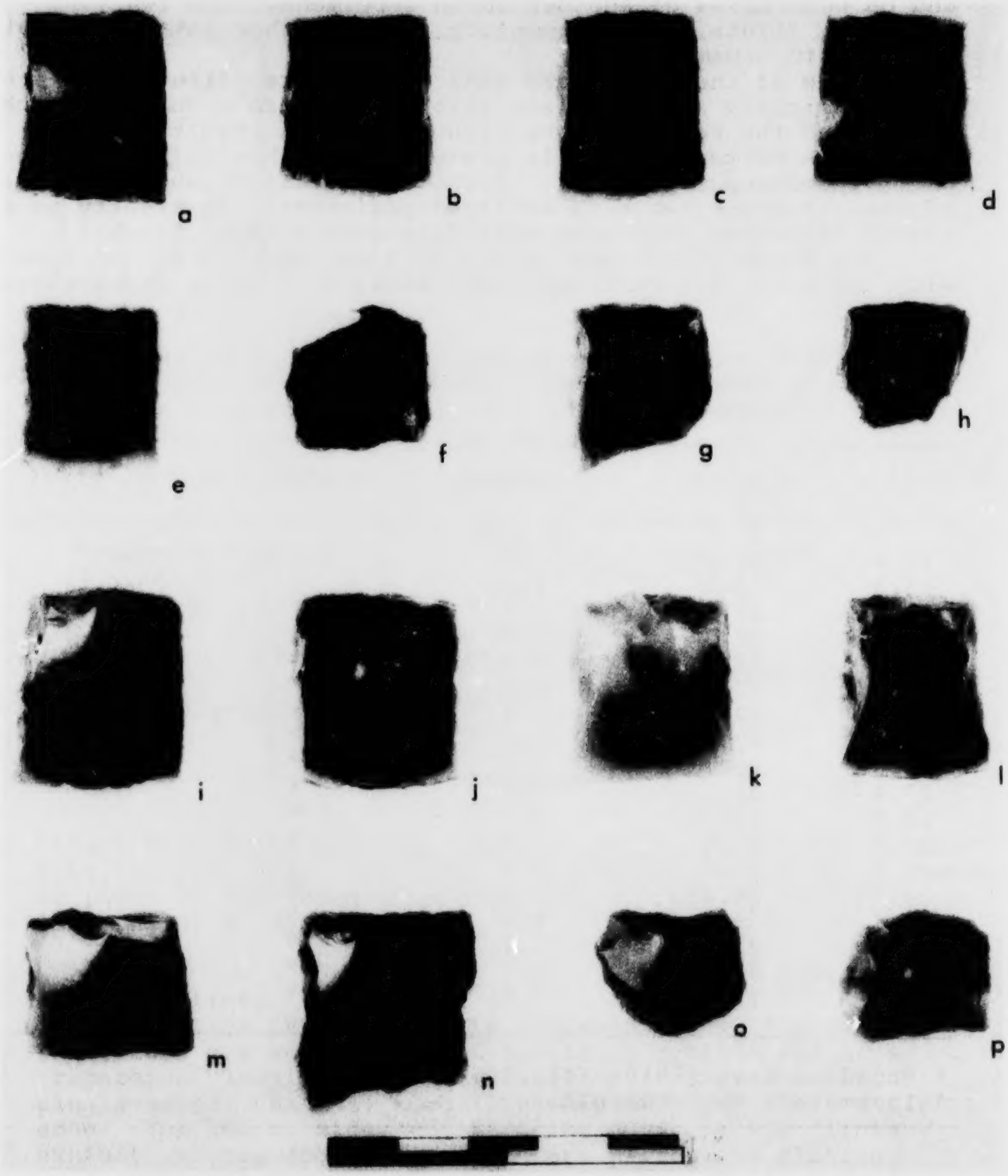
a
b
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Figure 76. English gunflints: a-h, blade gunflints; i-p, spall gunflints. Flints g-h and n-p have apparently been used with fire steels. (Photo by R. Chan.)

reflected light, two are spotted black and five are black throughout. One of the spotted flints has a cobble rind remnant on its heel (Fig. 76m).

The flints are rectangular and have wedge-shaped (triangular) longitudinal cross sections. Consequently, they are all single-edged. The perimeter of each flint has been extensively trimmed in the same manner as the blade flints. A distinct demi-cone of percussion is present on one side of six flints and on both sides of one flint. On the three remaining specimens, the demi-cones had apparently been removed during the trimming process (two specimens) or become obliterated through heavy use (one specimen). If it has not been removed during trimming, a bulb of percussion is located at the juncture of the bevel and the heel of each flint. Three flints with severely battered or notched perimeters appear to have been used with fire steels (Fig. 76 n-p).

The measurable spall gunflints are 26.0 - 30.6 mm long, 22.3 - 26.3 mm wide and 7.6 - 11.9 mm thick. They all appear to be of one size (Table 14).

Although spall gunflints are attributed to the Dutch by Hamilton (1971: 62) and Witthoft (1966: 26), recent studies by de Lotbinière (1977) and White (1975) indicate that they were predominately made in England.

Table 14. Measurable Spall Gunflint Dimensions (mm) and Probable English Size Group (N = 8)

Width	Length	Thickness	Probable English Size+
22.3	19.7*	11.9	Carabine
22.4	27.8	9.6	"
24.0	26.0	8.5	"
24.7	22.2*	7.6	"
25.0	29.5	11.0	"
25.1	28.7	9.2	"
25.7	30.6	10.0	"
26.3	30.0	8.8	"

+ Based on Rees (1819: Vol. 14, "Flint").
* Incomplete measurements.

Unattributable Fragments

In addition to the specimens described above, there are seven unmeasurable fragments and chips broken from gunflints.

Lead Balls

Unused lead balls are present in the sizes listed in Table 15. The majority of the balls were probably intended for use in smoothbore flintlock muskets ranging from about .54 to about .62 cal. (Engelhardt 1961: 165). However, the two smallest ones (those with a diameter of .445 - .451 in.) may have been intended for rifles or pistols with barrel bores ranging from about .45 to .47 in. in diameter.

In addition to the 15 unused balls, the collection contains two modified specimens. The first of these is a perforated .602-cal. ball which may have functioned as a bead (see Perforated Lead Ball in the Personal Items section). The second specimen consists of a plano-convex piece cut from a ball with a diameter of at least .429 in. The item is 10.9 mm in diameter and 5.6 mm thick.

Table 15. Unused Lead Ball Sizes and Weights

Diameter (mm)	Calibre (inches)	Gauge*	Weight (in grains)
11.30	.445	46	130.7
11.44	.451	45	129.6
13.30	.524	29	214.2
13.40	.528	28	219.1
13.50	.531	28	216.5
14.00	.551	25	248.8
14.15	.557	24	243.2
14.45	.569	23	261.6
14.60	.575	22	250.0
14.65	.577	22	247.4
14.75	.581	21	258.0
14.95	.589	21	308.8
15.25	.600	20	291.8
15.25	.600	20	309.4
15.35	.604	19	306.0

* Gauges provided correspond to those used in the English "Gun Barrel Proof Act of 1855" (Engelhardt 1961: 165).

Lead Shot

The site produced 1688 lead shot which fall into the size categories shown in Table 16. The specimens are primarily of sizes such as are presently used to hunt medium-sized mammals and medium- to large-sized game birds.

Table 16. Lead Shot Sizes and Probable Hunting Usage

Diameter (mm)		Diameter (in.)		American Shot Size*	English Shot Size**	Quantity	Probable Hunting Usage
Range	Mean	Range	Mean				
2.4	2.4	.094	.094	7½	7	1	Grouse, Hare
2.6	2.6	.102	.102	7	6	1	Grouse, Hare
2.7 - 2.9	2.8	.106 - .114	.110	6	5	3	Grouse, Hare, Ducks
3.0 - 3.1	3.05	.118 - .122	.120	5	4	29	Ducks, Geese, Swans
3.2 - 3.4	3.3	.126 - .134	.130	4	3	102	Ducks, Geese, Swans
3.5 - 3.6	3.55	.138 - .142	.140	3	1	71	Ducks, Geese, Swans
3.7 - 3.9	3.8	.146 - .154	.150	2	-	132	Ducks, Geese, Swans
4.0 - 4.1	4.05	.157 - .161	.159	1	-	198	Geese, Swans
4.2 - 4.3	4.25	.165 - .169	.167	B	-	328	Geese, Swans
4.4 - 4.5	4.45	.173 - .177	.175	AIR RIFLE	BB	402	Geese, Swans
4.6	4.6	.181	.181	BB	-	72	Geese, Swans, Fox
4.7 - 4.9	4.8	.185 - .193	.189	BBB	-	70	Fox
5.0 - 5.2	5.1	.197 - .205	.201	T	AAA	152	Fox
5.3 - 5.4	5.35	.209 - .212	.210	TT	-	76	Fox
5.5 - 5.7	5.6	.216 - .224	.220	F	-	47	Fox
5.8 - 5.9	5.85	.228 - .232	.230	FF	-	4	Fox, Coyote, Lynx
Total						1687	

* After Logan (1959: 171).
** After Barnes (1969: 29).

Stone Projectile Points

Of the three recovered specimens, one is virtually complete, only the extreme tip is missing. Made of quartzite, the point (Fig. 77b) has an excurvate blade with shallow side-notches and an oval cross section. The very slightly convex base is lightly ground, as are the notches. The blade edges exhibit light use-polish which becomes more pronounced toward the tip. The artifact has the following measurements: overall length - 38.3 mm; maximum blade width - 24.3 mm; shoulder width - 23.5 mm; notch width - 20.5 mm; base width - 22.8 mm; and thickness - 7.5 mm.

The second specimen, also made of quartzite, is the base of an oval-sectioned, side-notched point (Fig. 77c). The convex basal edge and the notches are heavily ground. The base width, notch width and thickness of the piece are 19.6, 24.8, and 5.5 mm, respectively.

The final item consists of the tipless blade of a tanged point (Fig. 77a). Composed of grey chert, it has an excurvate form with a bi-convex cross section. The measurements are as follows: existing length - 43.2 mm; maximum width - 20.0 mm; shoulder width - 16.0 mm; and thickness - 11.5 mm.

The first two specimens are identified as Besant Side Notched atlatl points (B. Gordon 1978: pers. com.) which date to AD 200-AD 750 and are characteristic of the Besant Phase of the Napikwan cultural tradition in the Northern Plains area (Calder 1977: 88; Reeves 1970: 162). The third point cannot be classified or dated because it lacks its hafting element.

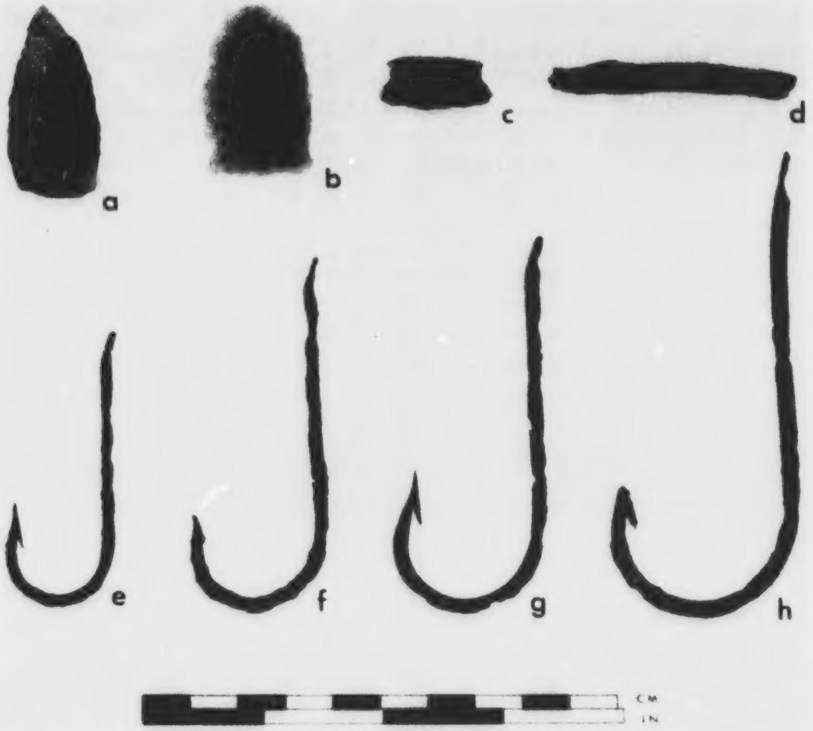

Figure 77. Subsistence and defence items: a, unidentified projectile point blade; b-c, Besant Side Notched atlatl points; d, possible lead line weight; e-h, fishhooks. (Photo by R. Chan.)

Fishhooks

The site produced one fragmentary and six intact ferrous metal fishhooks of four sizes (Fig. 77e-h; Table 17). All of them have the same general form (Fig. 78). The shanks are straight with the exception of the largest specimen which has a shank that is bent slightly to the rear (Fig. 77h). The end of each shank is flattened perpendicular to the plane of the hook and bent back. The "bend" (Fig. 78) of the hooks is "round," that is, it forms a semi-circular arc. The points are of the "spear" type (the barb is straight on the side facing the shank, Gabrielson 1950: 171-72), and are bent away from the shanks.

The hooks were most likely made in Redditch, Worcestershire, which was the major centre of fishhook manufacture during the first decade of the 19th century (McClane 1974: 400). The relative sizes of the hooks suggest that they were intended for fish such as lake trout, whitefish, cisco, pike, burbot and yellow walleye.

Table 17. Ferrous Metal Fishhook Sizes (mm)

Size Group	Overall Length	Shank Length	Shank Diameter	Point Length	Throat Depth	Gap Width	Quantity	Figure
a	57.0-60.9	43.2-48.4	2.2-2.3	10.6-11.0	20.3	18.3-18.7	4	77e
b	78.0	59.0	2.6	6.4*	19.1*	25.7*	1	77f
c	82.1	62.8	3.0	12.8	28.6	25.3	1	77g
d	102.0	78.8	3.5	10.4*	26.1*	33.5*	1	77h

* Incomplete measurements.

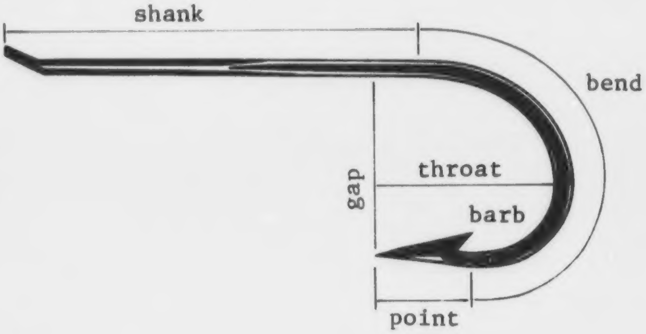

Figure 78. The parts of a fishhook (after McClane 1974). (Drawing by S. Epps.)

Lead Line Weight (?)

A 53.5-mm long by 6.3-mm diameter tube formed by hammering a thick lead sheet into a cylinder with a very small bore may have been formed around a fishing line to serve as a sinker (Fig. 77d).

Tools and Hardware

Awls

The collection contains a single bone awl, as well as nine ferrous metal awls which can be segregated into four varieties on the basis of form.

Ferrous Metal

Offset, Rectangular/Square-Sectioned Awls. Six awls have offset blades that are rectangular/square in cross section and taper uniformly to sharp points (Fig. 79a-d). The offset of each awl is off-centre to some degree. As a result, the blades have differential lengths (Table 18). Three sizes appear to be represented (Table 18).

Table 18. Offset, Rectangular/Square-Sectioned Awl Sizes (mm)

Size Group	Total Length	Length of Long Blade	Length of Short Blade	Dimensions at Offset	Figure
a	74.4	39.0	32.7	2.2 x 3.6	79a
b	87.0	44.3	40.3	2.6 x 4.1	79b
	86.4	46.4	36.4	2.8 x 5.0	79c
	76.4*	44.2	29.6*	2.3 x 4.2	
c	101.0	50.3	46.5	3.2 x 5.2	79d
	73.1*	40.3*	28.2*	2.7 x 5.3	

* Incomplete measurements.

Offset, Round-Sectioned Awl. One incomplete awl that is 66.5 mm long has unequal, offset blades that are round in cross section (Fig. 79e). The long blade is 46.2 mm long and measures 4.4 by 4.6 mm at the base. It tapers gradually to a sharp point. The remnant of the short blade is 18.1 mm long and measures 3.7 by 3.9 mm at the offset. The sides of the offset and the adjacent portions of both blades are flattened.

Straight, Bi-Pointed Awl. The specimen (Fig. 79f) is 112 mm long and has a slightly rhombic cross section. It is a maximum 5.9 mm wide, and 4.3 mm thick at a point 47 mm from one end and 65 mm from the other. The awl has been bent through hard use.

Straight, Tanged Brad Awl. A ferrous metal object tentatively identified as a brad awl blade has a slightly splayed, 5-mm wide chisel-like point at the end of a 121-mm long shaft (Fig. 79g). The shaft constricts slightly just behind the point and then expands gradually toward the butt end, achieving a maximum width and thickness of 7.4 and 4.0 mm, respectively, about 71 mm from the point. The shaft then narrows once again, terminating in a rounded point. While most of the artifact has a rectangular cross section, a 39-mm long segment at the butt end has been rounded.

Brad awls, fitted with wooden handles, were used for boring pilot holes for nails and screws. The tool was started

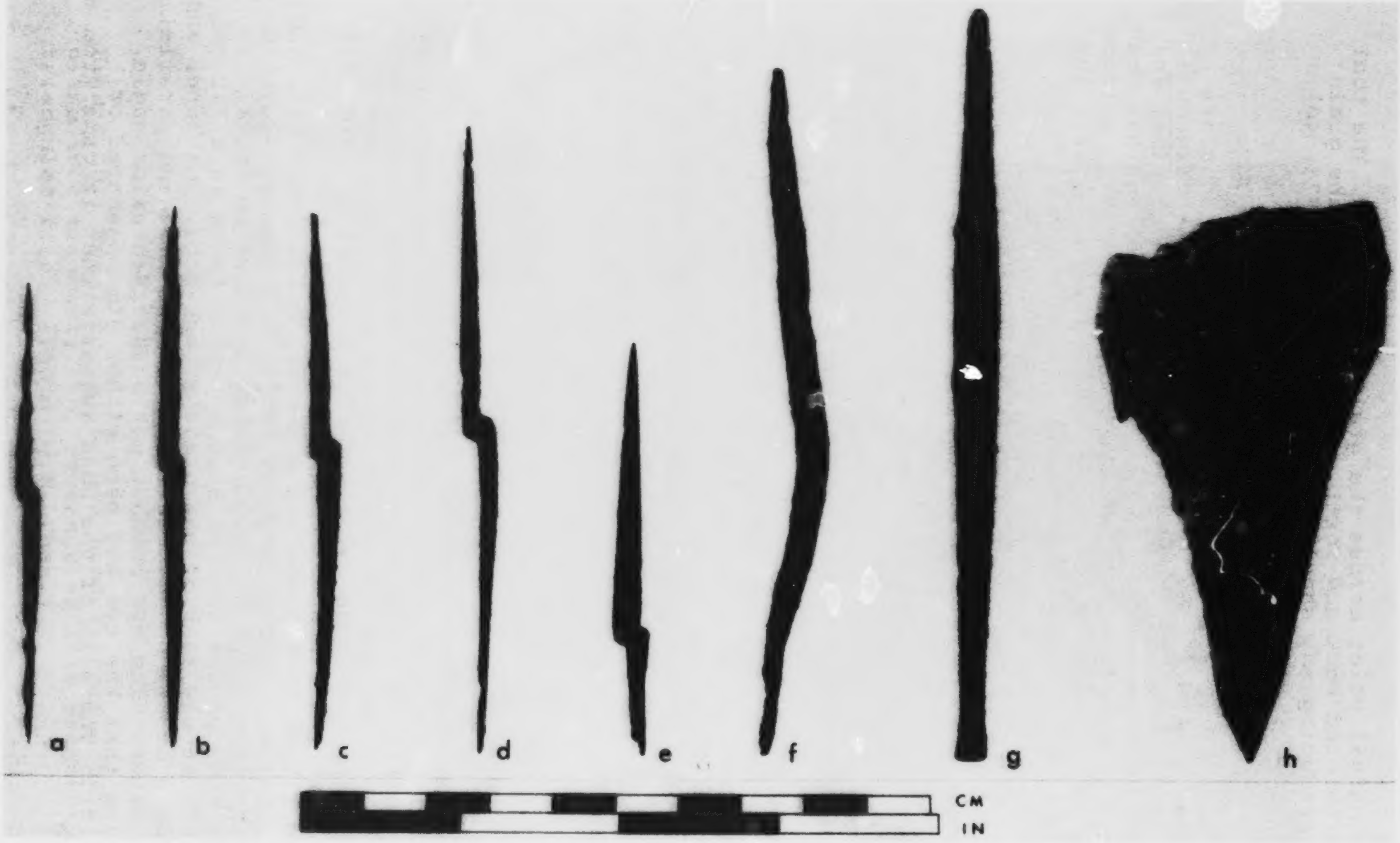

Figure 79. Metal and bone awls: a-d, offset, rectangular/ square-sectioned; e, offset, round-sectioned; f, straight, bi-pointed; g, brad awl (?) blade; h, caribou radius awl. (Photo by R. Chan.)

with the chisel point across the grain of the wood. The tool was then twisted back and forth, squeezing aside the grain without producing any shavings or dust (Salaman 1975: 46).

Bone

Caribou Radius Awl. This tool is 90 mm long and consists of a distal fragment of a split caribou (Rangifer tarandus; A. Rick 1977: pers. com.) radius with a pointed proximal end (Fig. 79h). The posterior surface of the distal end has been flattened, apparently by grinding, while the adjacent portion of the shaft is covered with numerous, small cut marks. The articular surface is unmodified. The point of the awl is slightly rounded.

Gimlet

Used for boring holes in wood, a gimlet is a small hand tool composed of a ferrous metal shaft with a bit at one end and a transverse handle at the other. The recovered specimen is incomplete and consists of a 87.5-mm long section of the hand-forged shaft (Fig. 80b). The broken bit end is 22.0 mm long and 4.0 - 5.0 mm wide. It has a concavo-convex cross section and expands toward the broken end. The oval-sectioned shank measures 3.8 by 4.0 mm adjacent to the bit and 4.5 by 6.4 mm at the opposite end. The shank melds indiscernibly into the flattened, tapered tang which is a maximum of 4.1 mm thick by 6.4 mm wide approximately 25 mm from the end. The extreme end of the tang is at a right angle to the shaft

Axe Head

The single-bitted, eyed axe head is incomplete, the posterior portion having broken off just behind the blade (Fig. 80a). The specimen is handwrought and was produced by folding an iron strap around a mandrel, welding the two ends, forging the blade and finally grinding, carburizing and tempering the bit (Ross 1977: 9). The terminology (Fig. 81) used to describe the specimen is based on Ross (1977).

The 112-mm long blade has a convex, knife-edged bit, and slightly concave edges. The bit end is 102.7 mm wide, while the posterior portion is 51.0 mm wide and 18.4 mm thick. In that the body of the head is 58.0 mm wide, there is a 7.0-mm high cleft at the rear of the blade's back edge. The upper and lower edges of the body appear to have been flat and parallel to each other. The eye remnant has a sharp anterior angle, indicating that the eye had been either almond-shaped or triangular. The size of the head suggests that it came from a belt axe.

a
b
c
d
e
f
CM
IN

Figure 80. Metal tools: a, axe head fragment; b, gimlet; c, plane iron fragment; d-e, rectangular file fragments; f, triangular file. (Photo by R. Chan.)

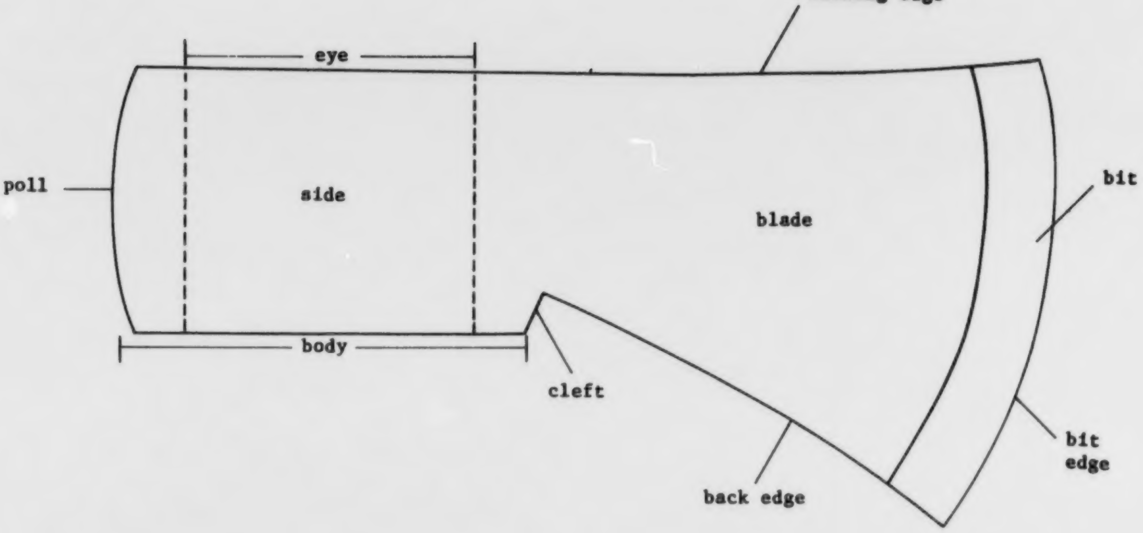

Figure 81. Axe head terminology. (Drawing by S. Epps.)

Plane Iron

The bevelled cutting end of the "iron" or "cutter" of a plane was uncovered in Room A of the main house. The 17.5-mm wide object (Fig. 80c) is of laminated construction, the bevelled side being iron while the opposite face is steel. The artifact decreases gradually in thickness toward the straight and square cutting edge.

The width of the iron indicates that it was used in a rebate (rabbet) or a modelling plane (Martin 1977: 10). The former type, also called a boxing plane, was used to form and smooth rebates (squared recesses) along the edges of boards, etc. (Salaman 1977: 347-48). Modelling or thumb planes are simply miniature versions of a number of different plane types, including smoothing and rebate. They were used by first-class joiners, shipfitters and other tradesmen for making and cleaning up a run of moulding too short or sharply curved to be stuck by a normal plane (Salaman 1977: 367).

Flake Knife

This intact quartzite flake tool has an asymmetrical trianguloid body (Fig. 82a) 48.8 mm long, 30.4 mm wide and 8.5 mm thick. Its base is relatively flat, while the lateral edges are slightly to strongly convex. Practically the entire perimeter of the flake has been pressure flaked: 43 per cent of it is bifacially retouched, 50 per cent is unifacially retouched and 7 per cent is unmodified. The lateral edge with the greater curvature exhibits a slight amount of use-polish.

Homemade Canoe (?) Knife

Among the recovered artifacts is a kitchen (butcher) knife which has been converted into what appears to have functioned as a canoe knife (Fig. 69d). The truncated blade is 81.7 mm long, 29.5 mm wide and about 3.0 mm thick at the rear. It has a relatively straight back and a convex edge. The anterior portion of the blade curves gradually to the left Its end is slightly curved and has been ground down on the right side to produce a sharp edge. The choil of the blade is approximately 8.4 mm long and at an angle of about 108 degrees to the cutting edge. The parallel sided tang is 19.8 mm wide and has a slightly rounded butt. Two fragmentary rivets about 2.5 mm in diameter protrude from the tang.

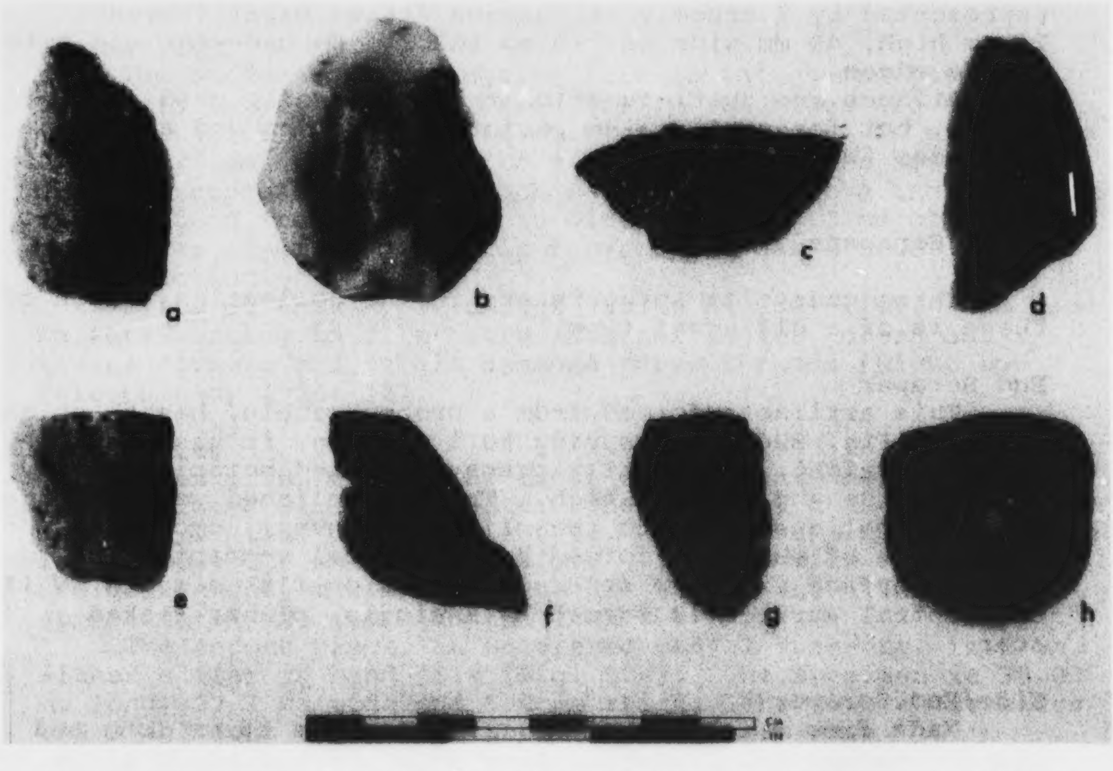

Figure 82. Stone tools: a, flake knife; b, biface; c, biface base; d, end scraper; e, side/end scraper; f, side scraper; g-h, scoria abraders. (Photo by R. Chan.)

The canoe knife, also commonly referred to as the crooked knife or "mocotaugan," is a multi-purpose tool. It "serves an Indian or Canadian voyager for plane, chisel, and auger. With it the snow-shoe and canoe-timbers are fashioned, the deals of their sledges reduced to the requisite thinness and polish, and their wooden bowls and spoons hollowed out" (Franklin 1823: 240).

Stone Bifaces

Two bifaces, one complete and the other fragmentary, were recorded. The intact specimen (Fig. 82b) is made of white quartzite and has an asymmetrical ovate body 54 mm long, 43 mm wide and 10 mm thick. Both faces have been completely percussion flaked. The edges of the resultant flake scars have been rounded to varying degrees through subsequent use. Similarly, with the exception of two sharp sections 10 mm 25 mm long, respectively, the edges of the tool have been completely blunted by very hard use.

The other biface (Fig. 82c), composed of red chert, is represented by a crudely percussion flaked basal fragment 26 mm high, 49 mm wide and 15 mm thick. No use-wear was noted on the edges.

Bifaces are multi-function tools generally used as knives, but frequently also performed scraping and slotting functions (Wright 1975: 4).

Stone Scrapers

Three quartzite scrapers are in the collection. Each of these is of a different type.

End Scraper

This artifact, formed from a broken pebble, has an oblong outline (Fig. 82d). Measuring 50.7 mm long, it has a single, fairly straight, unifacially pressure flaked scraping face 30.7 mm wide and 14.0 mm high. The use-polished working edge is at an oblique angle to the slightly convex, unmodified sides, one of which is formed by a cortical remnant. The dorsal surface exhibits several percussion-flaked scars, while the ventral surface is formed by a single, planar-flaked scar.

Side/End Scraper

Made from a tabular flake, this tool is 35 mm long and has an uneven, excurvate scraping face which extends along one lateral edge and the proximal end (Fig. 82e). The face is 40.5 mm across and up to 9.2 mm high. It has been unifacially percussion flaked and displays a moderate degree of use-polish, predominately along the lateral edge. The opposite lateral edge is slightly excurvate and has been bifacially percussion flaked, apparently to produce a cutting edge. The distal end of the tool is composed of a straight, unaltered fracture plane.

Side Scraper

The side scraper consists of an irregular flake (Fig. 82f) with one excurvate edge unifacially retouched for a distance of 23.7 mm. The 2.8-mm high scraping face is moderately bevelled. The side opposite the modified margin is cortex covered. The flake is 51 mm long, 25 mm wide and up to 13 mm thick.

Files

The Nottingham House collection contains one intact and two extremely fragmentary files. These can be separated into two groups on the basis of the cross-sectional shape of their blades: triangular (1 specimen) and rectangular (2 specimens).

Triangular

The handwrought triangular file is intact and has a 127-mm (5 in.) long blade (Fig. 80f). Its sides are at an angle of about 60 degrees to each other and vary in width from 7.3 to 7.5 mm at the point to 9.3 - 9.5 mm at the heel. Each side has approximately 68 double-cut teeth to the inch and these extend from the point to within about 7.3 mm of the heel. The 42-mm long tang is tapered and has a quadrilateral cross section.

Files of this type, called "three square files," are used in metalworking to file acute internal angles, clean out square corners and repair damaged screw threads (Nicholson File Company 1956: 15).

Rectangular

Files with rectangular cross sections are represented by two unrelated blade fragments. The first of these is the tapered point of a flat file (Fig. 80d). The piece is 31.0 mm long, about 3.6 mm thick, and 9.6 - 13.2 mm wide. Its sides are double-cut, while the edges are single-cut. There are approximately 26 teeth to the inch.

The second piece, an untapered medial fragment, is from either a flat or hand file (Fig. 80e). The specimen is 39.0 mm long, 22.2 mm wide and 5.8 mm thick. The double-cut sides and single-cut edges have about 32 teeth per inch.

Flat files, those with rectangular, double-cut blades that taper in width, are considered general-purpose files (Simonds Cutting Tools n.d.: 11). Hand files are essentially the same but taper in thickness rather than width. They are used to finish flat metal surfaces (Simonds Cutting Tools n.d.: 11).

Scoria Abraders

Two irregular lumps of scoria, one with a generally rough surface (Fig. 82g) and one with smooth contours (Fig. 82h), may have been used for dressing hides, or grinding and polishing such materials as bone and wood.

Fleshers

There are two fleshers (Fig. 83a-b), both of which are composed of the proximal two-thirds of a moose (*Alces alces*; A. Rick 1977: pers. com.) metatarsal. The distal ends of the 290 - 292-mm long tools have bevelled bits 98 and 90 mm-long, respectively. The edges of the bits, at least one of which was serrated, are chipped from use. The shaft of either tool has been trimmed by cutting away portions of the anterior and posterior surfaces with a knife and then smoothing them to varying degrees with a stone abrader or file. The

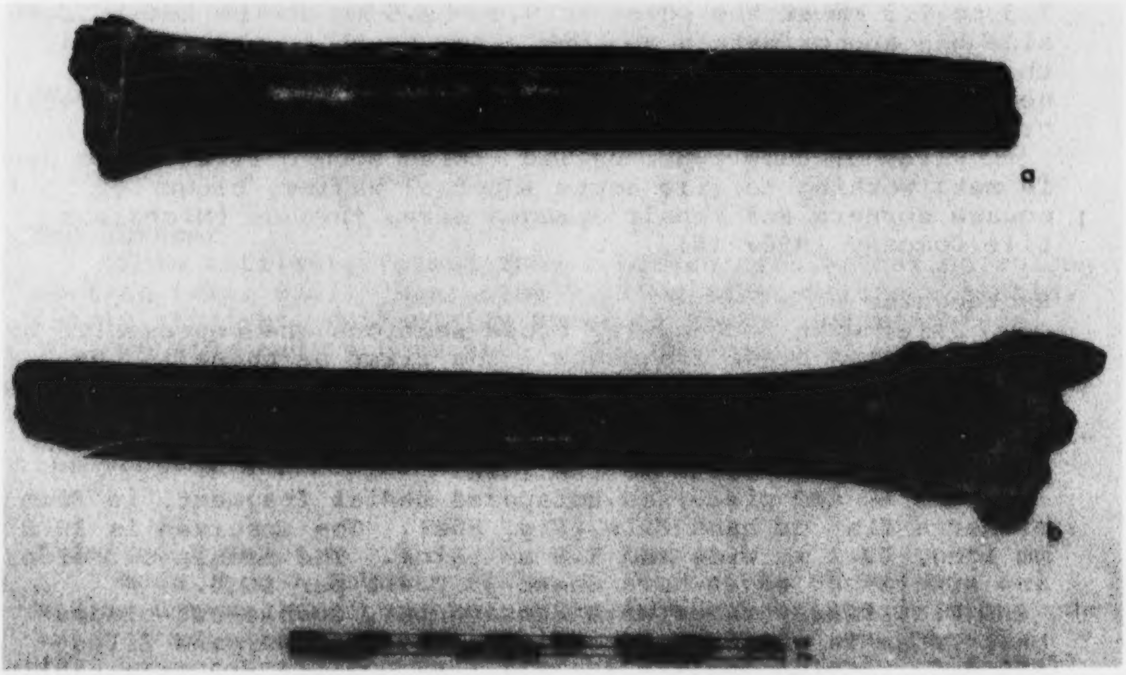

Figure 83. Moose metatarsal fleshers. (Photo by R. Chan.)

articulating surfaces are unaltered. One of the specimens was found in association with two articulating tarsals which probably served as a handle for the tool (Fig. 83b). With the tarsals in place, the flesher measures 333 mm overall.

As the name implies, fleshers were used to remove flesh and fat from hides in preparation for tanning. The tool was held in the hand with the bit toward the user and then struck downward repeatedly onto the pegged hide to remove the unwanted tissue (Skinner 1912: 125-26).

Thumb Latch Lift Bar

This forged piece of door hardware (Fig. 84a) was recovered from the northern North West Company structure. The object has a flat, circular thumb press 39 mm in diameter and about 3.6 mm thick. The 111-mm long shank that projects therefrom curves downward sharply and is perforated by three

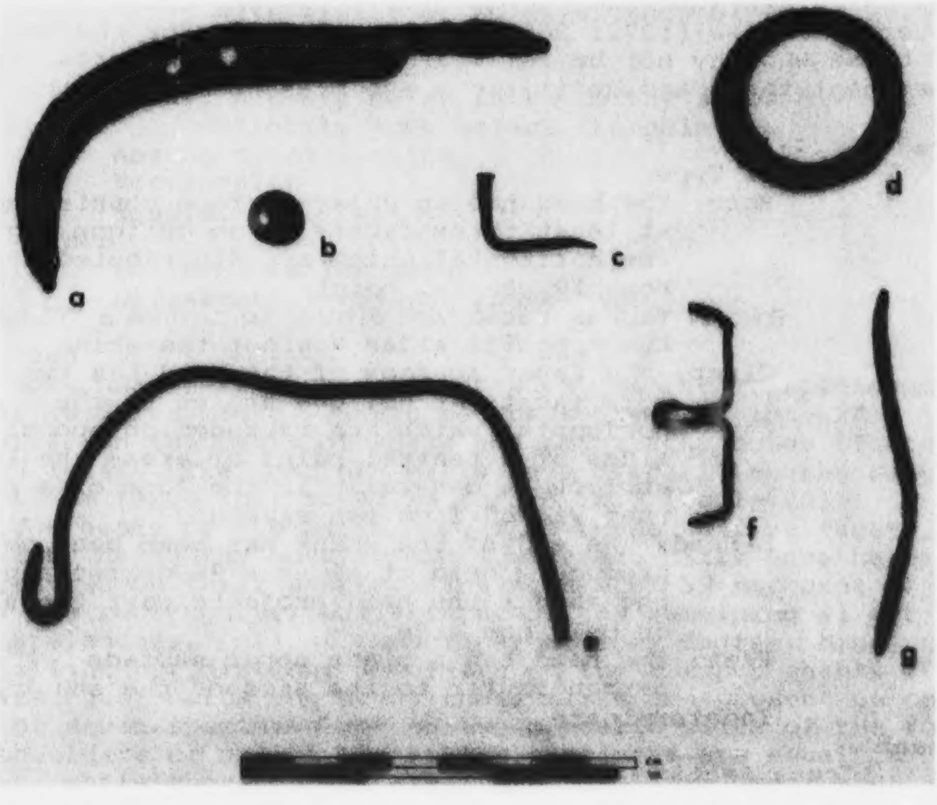

Figure 84. Hardware: a, thumb latch lift bar; b, brass tack head; c, brass wire nail; d, ferrous metal rings; e-g, worked iron wire. (Photo by R. Chan.)

pivot holes about 3.0 - 4.5 mm in diameter situated 19.4 - 41.4 mm from the thumb press. The shank has its maximum width (13.0 mm) in the pivot area. It then tapers in both width and thickness toward the sharp point.

The lift bar is that component of a door latch passing through the handle and the door, and under the latch bar. The lift bar pivots at or near the handle so that pressure on the thumb press raises the shank, thereby disengaging the latch bar from its catch on the other side of the door. The curved shank of the lift bar probably functioned as another handle for the door that it was attached to (Priess 1972: 142).

Wrought-Iron Nails

The site produced 86 complete handwrought nails, 51 head fragments, 26 shank fragments and 31 point fragments. Of the 194 specimens, 127 are classifiable and represent five types: rose head (69 specimens), rose-T (16 specimens), clasp (26 specimens), L-head (15 specimens) and flat head (1 specimen). The nails are described using attributes and terms defined by Peter J. Priess (1972: 208-12; 1977: 14-17). For the benefit of those who may not be familiar with Priess' reports, the pertinent terms and definitions are presented herewith.

Head
- General Type
  - Rose: The head has an upper surface consisting of at least three facets at an oblique angle to the horizontal which are distributed around a roughly central point
  - Rose-T: This is a rose head altered to produce a "T" by flattening two opposite sides against the shank
  - Clasp: The upper surface of the head has two or more facets at oblique angles to the horizontal which are arranged on opposite sides of a central point or area; the lower surface is generally in the form of a peak when viewed from the side
  - L-Head: The end of the shank has been bent over to produce a head at about a 90-degree angle to the shank; the head projects past the shank on only one side
  - Flat: The head has a plane upper surface perpendicular to the axis of the shank
  - Indeterminate

Shank
- Cross Section
  - Rectangular
  - Square

  - Taper
    - Extent
      - Full: Extending from one end of the shank to the other
      - Partial: Not extending the full length of the shank
      - Non-tapered: No discernible taper
    - Form
      - Uniform: The same on all sides
      - Differential: The same on opposite sides but differing on adjacent sides
      - Indeterminate
- Point
  - Form
    - Sharp: Being or approximating a single point
    - Blunt: Being an abrupt termination
    - Flat: Terminating in a rounded edge with two opposite sides of the shank diverging at the beginning of the point
    - Chisel: Terminating generally in a straight edge with little or no divergence of the sides
      - Rounded Corners
      - Squared Corners
    - Spear: A sharp point in which the sides diverge slightly just before the point
    - Absent Cross section
    - Rectangular
    - Square
  - Taper
    - Uniform: As for shank
    - Differential: As for shank

Rose Head

Rose head nails are represented by 44 intact specimens and 25 head fragments. These can be segregated into 24 varieties on the basis of shank and point attributes (Table 19; RH 1-24). The complete nails have overall lengths ranging from 15 mm (9/16 in.) to 92 mm (3 5/8 in.) (Table 20).

The heads of the nails have from three to five facets, with four being the most common. Nineteen nails have heads not centred on their shanks. The shanks of 59 per cent of the nails are rectangular, while those of the remaining 41 per cent are square. All of them taper to some degree. Nine nails have slight but distinct shoulders on their upper shanks. Situated just below the head, these marks are present on one side of seven specimens and on two opposite sides of the rest. The shoulders of one of the latter specimens are equal in height, while those of the other are not. The upper ends of the shanks of another four nails were peined on one (2 specimens) or both (2 specimens) of their broad sides before heading.

TABLE 19 WROUGHT-IRON NAIL VARIATIONS

VARIATION	QUANTITY	HEAD						SHANK								POINT									
		Rose	Rose-T	Clasp	L-Head	Flat	Indeterminate	Rectangular	Square	Full Taper	Partial Taper	Non-Tapered	Uniform Taper	Differential Taper	Indeterminate	Sharp	Blunt	Flat	Chisel	Spear	Absent	Uniform Taper	Differential Taper	Rectangular	Square
RH 1	1	X						X		X			X					X					X	X	
RH 2	1	X						X		X			X								X				
RH 3	4	X						X		X				X				X					X	X	
RH 4	2	X						X		X				X					X				X	X	
RH 5	1	X						X			X		X			X						X			X
RH 6	2	X						X			X		X			X							X	X	
RH 7	6	X						X			X		X				X					X			X
RH 8	4	X						X			X		X					X					X	X	
RH 9	3	X						X			X		X						X				X	X	
RH 10	10	X						X			X		X								X				
RH 11	1	X						X			X			X		X							X	X	
RH 12	1	X						X			X			X				X					X	X	
RH 13	2	X						X			X			X					X				X	X	
RH 14	3	X						X			X			X							X				
RH 15	3	X							X	X			X			X						X			X
RH 16	1	X							X	X			X				X					X			X
RH 17	1	X							X	X			X								X				
RH 18	1	X							X	X				X			X					X			X
RH 19	6	X							X		X		X			X						X			X
RH 20	2	X							X		X		X			X							X	X	
RH 21	2	X							X		X		X				X					X			X
RH 22	1	X							X		X		X					X					X	X	
RH 23	1	X							X		X		X						X				X	X	
RH 24	10	X							X		X		X								X				

TABLE 19 contd. WROUGHT—IRON NAIL VARIATIONS

VARIATION	QUANTITY	HEAD						SHANK								POINT									
		Rose	Rose-T	Clasp	L-Head	Flat	Indeterminate	Rectangular	Square	Full Taper	Partial Taper	Non-Tapered	Uniform Taper	Differential Taper	Indeterminate	Sharp	Blunt	Flat	Chisel	Spear	Absent	Uniform Taper	Differential Taper	Rectangular	Square
RT 1	1		X					X			X		X			X						X			X
RT 2	1		X					X			X		X				X					X			X
RT 3	1		X					X			X		X					X					X	X	
RT 4	4		X					X			X		X								X				
RT 5	1		X					X			X			X					X				X	X	
RT 6	1		X					X			X			X							X				
RT 7	1		X						X	X			X			X						X			X
RT 8	1		X						X	X			X								X				
RT 9	1		X						X		X		X			X							X	X	
RT 10	1		X						X		X		X					X					X	X	
RT 11	2		X						X		X		X								X				
RT 12	1		X						X			X							X				X	X	
CL 1	4			X				X			X		X			X						X			X
CL 2	3			X				X			X		X				X					X			X
CL 3	1			X				X			X		X					X					X	X	
CL 4	5			X				X			X		X								X				
CL 5	1			X				X			X			X		X							X	X	
CL 6	1			X				X			X			X							X				
CL 7	2			X					X	X			X				X					X			X
CL 8	2			X					X		X		X			X						X			X
CL 9	4			X					X		X		X				X					X			X
CL 10	3			X					X		X		X								X				

TABLE 19contd.		WROUGHT-IRON NAIL VARIATIONS																							
VARIATION	QUANTITY	HEAD						SHANK								POINT									
		Rose	Rose-T	Clasp	L-Head	Flat	Indeterminate	Rectangular	Square	Full Taper	Partial Taper	Non-Tapered	Uniform Taper	Differential Taper	Indeterminate	Sharp	Blunt	Flat	Chisel	Spear	Absent	Uniform Taper	Differential Taper	Rectangular	Square
LH 1	4				X			X		X				X		X							X	X	
LH 2	1				X			X		X				X							X				
LH 3	2				X			X			X			X		X							X	X	
LH 4	1				X			X			X		X								X				
LH 5	1				X				X	X			X				X					X			X
LH 6	4				X				X	X				X		X							X	X	
LH 7	1				X				X	X				X							X				
LH 8	1				X				X		X			X			X						X	X	
FH 1	1					X			X		X		X								X				
IN 1	2						X	X		X			X			X						X			X
IN 2	1						X	X		X			X								X				
IN 3	1						X	X			X		X			X							X	X	
IN 4	1						X	X			X		X								X				
IN 5	1						X	X			X			X							X				
IN 6	2						X		X	X			X			X						X			X
IN 7	2						X		X		X		X								X				

TABLE 19 contd.		WROUGHT-IRON NAIL VARIATIONS																						
		HEAD						SHANK								POINT								
VARIATION	QUANTITY	Rose	Rose-T	Clasp	L-Head	Flat	Indeterminate	Rectangular	Square	Full Taper	Partial Taper	Non-Tapered	Uniform Taper	Differential Taper	Indeterminate	Sharp	Blunt	Flat	Chisel	Spear	Absent	Uniform Taper	Differential Taper	Rectangular	Square
SH 1	1						X	X		X			X								X				
SH 2	2						X	X		X				X							X				
SH 3	11						X	X			X		X								X				
SH 4	1						X	X			X			X							X				
SH 5	3						X		X	X			X								X				
SH 6	7						X		X		X		X								X				
SH 7	1						X		X			X									X				
PT 1	7						X								X	X						X			X
PT 2	10						X								X	X							X	X	
PT 3	1						X								X	X							X		X
PT 4	5						X								X		X					X			X
PT 5	3						X								X			X					X	X	
PT 6	3						X								X				X				X	X	
PT 7	2						X								X					X			X	X	

Table 20. Rose Head Nail Lengths

Length mm	Length in.*	Quantity	Length mm	Length in.*	Quantity
15	9/16	1	56	2 3/16	1
25	1	2	58	2 5/16	1
26	1	1	61	2 3/8	1
31	1 1/4	1	62	2 7/16	3
32	1 1/4	1	63	2 1/2	1
33	1 5/16	1	64	2 1/2	2
34	1 5/16	2	65	2 9/16	2
35	1 3/8	1	67	2 5/8	2
36	1 7/16	1	68	2 11/16	1
40	1 9/16	1	71	2 13/16	1
42	1 5/8	1	72	2 13/16	1
43	1 11/16	2	73	2 7/8	2
44	1 3/4	2	79	3 1/8	1
45	1 3/4	1	83	3 1/4	1
48	1 7/8	1	88	3 7/16	1
50	2	1	91	3 9/16	1
53	2 1/16	1	92	3 5/8	1

* To nearest 1/16 of an inch.

The intact nails exhibit four different point forms: sharp (15 specimens), blunt (10 specimens), flat (11 specimens) and chisel (8 specimens). Of the latter, three points have rounded corners and straight sides, two have rounded corners and very slightly divergent sides and three have squared corners and parallel sides.

Rose-T

Eight intact and eight broken rose-T nails of 12 varieties are present in the collection (Table 19; RT 1-12). They have oblong heads with rounded to flattish ends. The upper surfaces of the heads are convex parallel to their long axes. Their undersides slope upward slightly from the shank on nine specimens, downward on two and are corroded/irregular on five.

The shanks of the nails are rectangular (9 specimens) and square (7 specimens). With one exception (variation RT 12), the shanks of all the nails are tapered. The upper shank of one nail exhibits a single shoulder, while that of another has proportionate shoulders on two contiguous sides (Fig. 85a). The upper ends of the shanks of two other nails have slight, peined depressions in one (1 specimen) or both (1 specimen) of their wide sides.

The nails have four different point forms: sharp (3 specimens), blunt (1 specimen), flat (2 specimens) and chisel (2 specimens). The corners of one of the chisel points are rounded and its sides are very slightly divergent; the other specimen has squared corners and parallel sides.

The lengths of the intact nails range from 38 mm (1 1/2 in.) to 66 mm (2 5/8 in.) (Table 21).

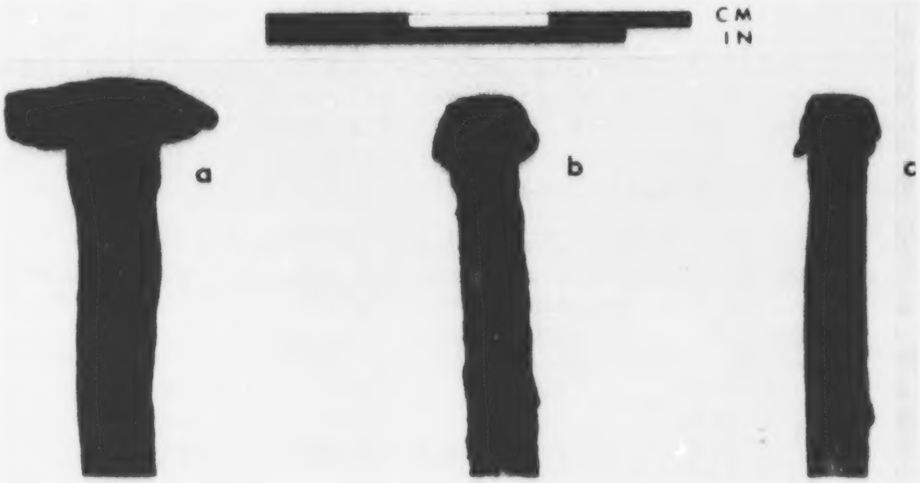

Figure 85. A rose-T nail (a) and two clasp nails (b-c) exhibiting slight angular shoulders beneath their heads. (Photo by R. Chan.)

Table 21. Rose-T Nail Lengths

Length			Length		
mm	in.*	Quantity	mm	in.*	Quantity
38	1 1/2	1	57	2 1/4	1
39	1 9/16	1	58	2 5/16	1
43	1 11/16	1	65	2 9/16	1
53	2 1/16	1	66	2 5/8	1

Clasp

This nail type is represented by 17 intact and nine fragmentary specimens of ten varieties (Table 19; CL 1-10). The complete specimens range in length from 34 mm (1 5/16 in.) to 87 mm (3 7/16 in.)(Table 22).

The heads of 14 relatively corrosion-free nails exhibit from six to eight facets: 13 specimens have three facets on either side of the central peak, while the remaining specimen has three facets on one side and five on the other. The central peak is relatively sharp on four heads, but flattened on the rest, possibly from use.

The shanks of the nails are all tapered. Sixteen of them are rectangular and ten are square. The shanks have sharp (7 specimens), blunt (9 specimens) and flat (1 specimen) points.

Slight shoulders are located on one side of four shanks and on opposite sides of three more (Fig. 85b-c). The marks on the latter specimens are all disproportionate. The proximal ends of 19 nails were peined on their wide sides before heading. The peining was bilateral on all but one of the specimens which was unilaterally peined.

Table 22. Clasp Nail Lengths

Length			Length		
mm	in.*	Quantity	mm	in.*	Quantity
34	1 5/16	1	76	3	2
44	1 3/4	1	77	3	1
45	1 3/4	1	78	3 1/16	1
46	1 13/16	1	80	3 1/8	1
67	2 5/8	2	81	3 3/16	1
70	2 3/4	1	83	3 1/4	1
72	2 13/16	1	87	3 7/16	1
73	2 7/8	1			

* To nearest 1/16 of an inch.

L-Head

The site produced 12 whole and three fragmentary L-head nails which can be segregated into eight varieties on the basis of shank and point attributes (Table 19; LH 1-8). The lengths of the intact specimens range from 29 mm (1 1/8 in.) to 38 mm (1 1/2 in.)(Table 23).

The heads of the nails have flat tops and rectangular outlines. They project past the shanks for a distance of 1.0 - 2.0 mm (1.5 mm mode). The tapered shanks of the specimens are rectangular in eight cases and square in seven. The points are predominately sharp; two exceptions are blunt.

Flat Head

The sole flat head nail (Table 19; FH 1) is fragmentary and has an irregular head with an underside that slopes upward slightly from the shank. The head is set off-centre on a

Table 23. L-Head Nail Lengths

Length		Quantity	Length		Quantity
mm	in.*		mm	in.*	
29	1 1/8	1	36	1 7/16	1
30	1 3/4	2	37	1 7/16	1
31	1 1/4	3	38	1 1/2	1
32	1 1/4	3			

square shank which has a partial/uniform taper.

Indeterminate

Five intact and five fragmentary nails have heads either too fragmentary or corroded for their form to be determined (Table 19; IN 1-7). The intact specimens are 27 mm (1 1/16 in.) to 81 mm (3 3/16 in.) long (Table 24). The shanks of the nails are rectangular in six cases and square in four. The points are all sharp.

Table 24. Indeterminate Nail Lengths

Length		Quantity	Length		Quantity
mm	in.*		mm	in.*	
27	1 1/16	1	75	2 15/16	1
51	2	1	81	3 3/16	1
68	2 11/16	1			

* To nearest 1/16 of an inch.

There are also 57 headless specimens, 26 of which are shank fragments and 31 of which are point fragments. The shank fragments, which make up seven varieties (Table 19; SH 1-7), have neither heads nor points. Fifteen of the specimens are rectangular in section and 11 are square. All but one of them taper to some degree.

The point fragments are of seven varieties (Table 19; PT 1-7) and represent five different point forms: sharp (18 specimens), blunt (5 specimens), flat (3 specimens), spear (2 specimens) and chisel (3 specimens). Of the latter, one specimen has rounded corners and parallel sides, while the other two have squared corners and slightly divergent sides.

The points have rectangular (18 specimens) and square (13 specimens) cross sections.

Two of the complete nails and one of the fragments are shouldered. The fragment has a single shoulder, while the complete specimens have shoulders of equal height on two opposite sides.

Brass Wire Nail

The specimen (Fig. 84c) is homemade and has an overall length of 32 mm (1 1/4 in.) with a shank diameter of 2.2 mm. It has an irregular flat head off-centre on the shank. The area directly beneath the head is flattened and exhibits distinct vise marks. The opposite end of the shank has been filed to a sharp point, with the file marks extending 12 mm back from the tip. The nail is clinched about 14 mm from the head.

Brass Tack

The slightly distorted head of a brass tack (Fig. 84b) was found in the west end of the main house. The head is approximately 12.0 mm in diameter and 4.5 mm high. Although the shank is missing, the brass solder that once held it in place is present on the underside of the head. Tacks of this type were sometimes used to decorate such items as gunstocks and knife sheaths.

Pane Glass

The 59 pieces of pane glass range from light yellowish green (7.5GY) to pale bluish green (10BG). They are 1.4 - 2.7 mm thick, with the measurements forming two clusters (Fig. 86): 1.4 - 2.1 mm (1.8 mm mode and 1.7 mm mean), and 2.4 - 2.7 mm (2.4 mm mode and 2.5 mm mean). Fourteen of the fragments exhibit one straight, cut edge; two have two straight edges that meet in a right angle; and one has what appears to be an intentionally curved edge adjacent to a straight one. Another two specimens have one straight, slightly bevelled edge that has been unifacially pressure flaked or gnawed with a pair of pincers. In that both edges adjoin scored cut marks, the retouching was probably performed to straighten an uneven or jagged break. Scored bands 1.0 - 2.8 mm wide extend across either face of five fragments, and 25 sherds have been either burned or heat warped. While the majority of the above fragments probably represent window glass, some may be from mirrors that have lost their silvering.

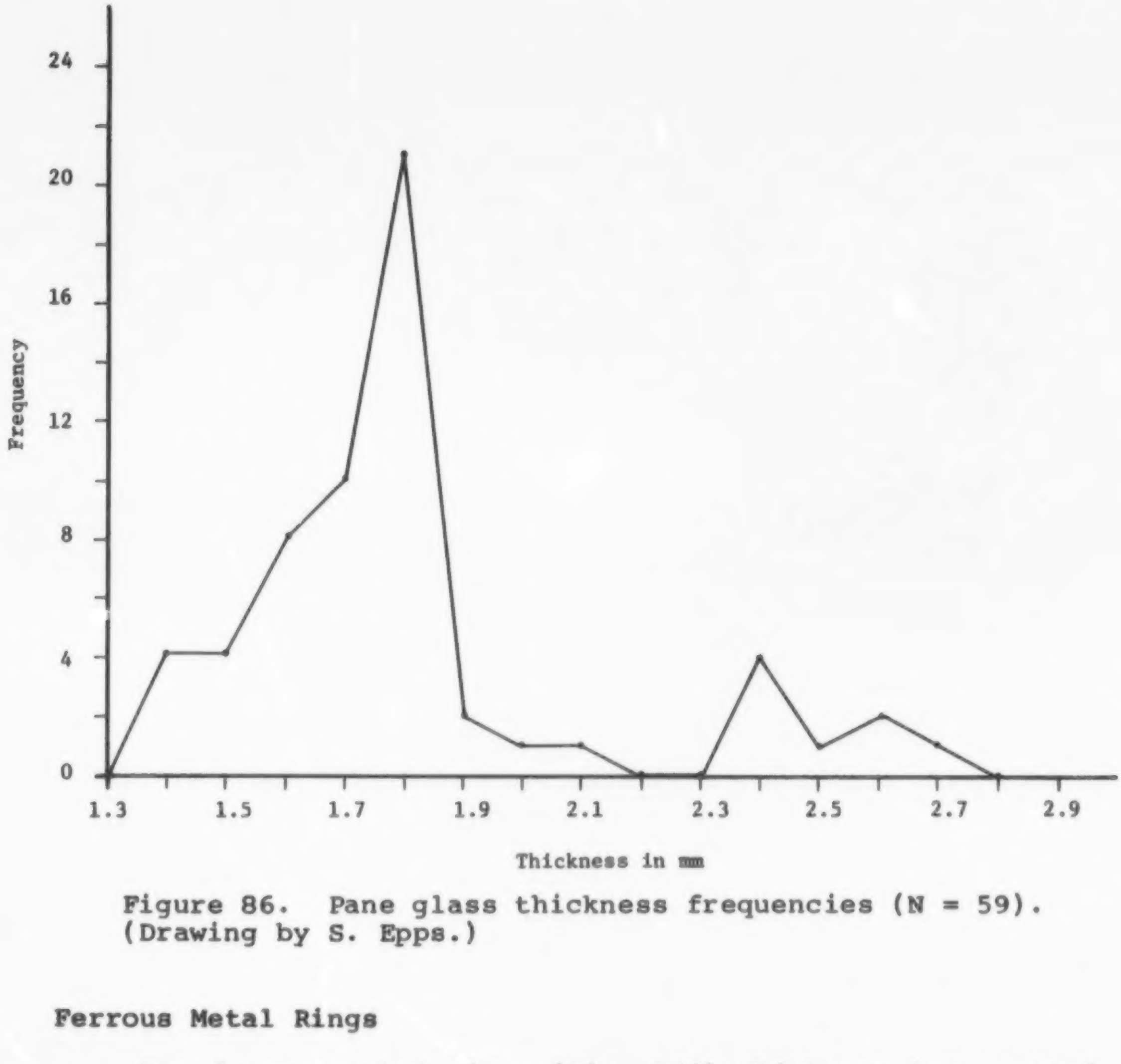

Figure 86. Pane glass thickness frequencies (N = 59). (Drawing by S. Epps.)

Ferrous Metal Rings

Two ferrous metal rings (Fig. 84d) which may have served as ferrules were found one inside the other in the sub-floor pit in Room C of the main house. Both were formed by bending a rectangular bar into a circular shape and then welding the overlapped ends. The larger ring has an exterior diameter of 37.5 - 39.2 mm and is 10.7 - 11.6 mm wide and 2.2 - 2.6 mm thick. The smaller one, 9.7 - 10.7 mm wide and 2.6 - 3.9 mm thick, tapers slightly toward one edge. Consequently, it has an external diameter that ranges from 32.9 - 33.5 mm at one edge to 33.6 - 34.8 mm at the other.

Wire

The site produced 36 pieces of wire. These are composed of iron (27 specimens) and brass (9 specimens).

Iron

The iron specimens are 22 - 309 mm (74 mm mean) long and 1.4 - 6.7 mm (2.7 mm mean and 2.0 mm mode) in diameter. Three of them are braided, consisting of two 1.0 - 1.9-mm diameter wires twisted together to form a single strand 2.0 - 3.0 mm in diameter. Four of the single strand specimens exhibit one cut end, and three more have one end that appears to have been intentionally tapered (Fig. 84g). Another two wires have been bent into shapes (Fig. 84e-f) that intimate a specific but as yet unidentified function.

Brass

The brass (H. Unglik 1978: pers. com.; Table 5 - Nos. 77-3605, 77-3606B, and 77-3611) wire specimens are 17 - 145 mm (66 mm mean) long, and 0.6 - 1.6 mm in diameter with a mean of 1.0 mm and a mode of 0.6 mm. Three of them have been cut at one end. One of the 0.6 mm-diameter wires is in the form of a small circular loop (Table 5 - No. 77-3605). Its ends have solder on them, indicating that they were once connected to each other or to another object.

Business Items

Lead Seal

The seal is unbroken and consists of two 23.3-mm diameter discs connected by a 5.5-mm wide band (Fig. 87c). One disc displays the stamped letters ...SAGE... in relief between two raised, curved lines just to the left of the connecting band, and what appears to be a representation of the toison d'or (the golden fleece) occupies the centre of the seal. The other disc has the notation 3/23"1 inscribed on its surface.

Seals with identical originator's markings have been unearthed at Edmonton House III (Nicks 1969: 151). Their inscriptions are more complete (ALSAGE...H...R...LONDO...) and reveal that the seals are those of Charles Alsager, a packer for the Hudson's Bay Company who operated in London with and without a partner from 1776 to about 1822 (HBCA, A.25/4, fol. 8-32; Kent's London Directory 1776: 8; Pigot's London Directory 1822: 128).

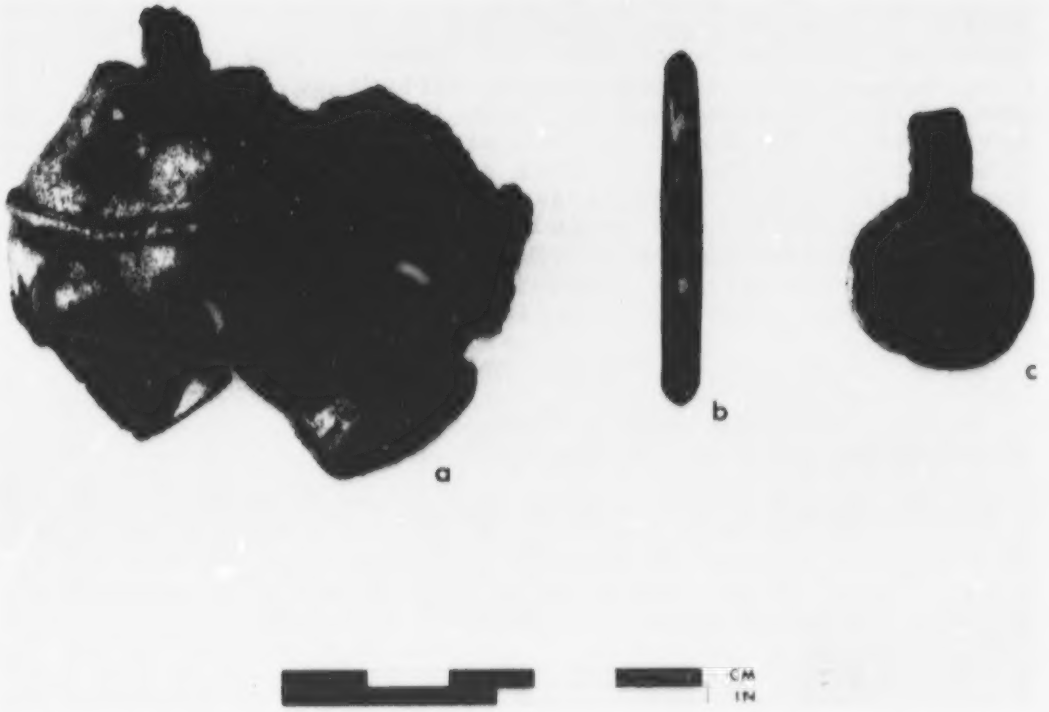

Figure 87. Business and transportation: a, brass bell; b, slate pencil; c, lead seal. (Photo by R. Chan.)

Slate Pencil

This item is 44.1 mm long and has a polyhedral shaft that ranges from 3.3 to 5.0 mm in diameter (Fig. 87b). The ends have rounded points.

Pencils of this type were used to write on slate tablets. The writing so produced is quite clear and can be easily erased so that the tablets can be used repeatedly to prepare tallies and the like.

Penknife

As the name implies, knives of this sort were used in preparing and sharpening quill pens. The recovered specimen is represented by a relatively intact blade attached to remnants of the bolster linings and spring (Fig. 59g). The slender blade is 37.6 mm long, a maximum of 6.0 mm wide at the centre and 1.7 mm thick at the tang. The back of the blade is lightly convex, while the V-grind cutting edge is straight except at the broken end where it begins to curve upward slightly. The squared tang is 11.8 mm long, 9.0 mm high and

2.0 mm thick. Its upper edge is in line with the back of the blade, while its lower edge extends 4.0 mm past the cutting edge. An angular kick 1.8 mm long by about 1.6 mm wide projects from the lower anterior corner of the tang.

Each bolster lining remnant expands toward the rear and has a 9.3 - 10.6-mm high by about 10.0-mm wide bolster at the narrow end. The bolsters have plano-convex cross sections and are decorated with narrow ribs set perpendicular to the long axis of the knife. The linings are held together with a rivet situated about 4.3 mm behind the bolsters. The rivet is 7.1 mm long and approximately 3.0 mm in diameter.

Transportation

Brass Bell

The object consists of a collapsed and partially melted hollow globe of cast brass (H. Unglik 1978: pers. com.; Table 5 - No. 77-3572) whose equator is encircled by a rounded ridge (Fig. 87a). As the artifact is deformed, it is impossible to provide any meaningful measurements. However, its weight (82 g) suggests that it is of the "horse" or "sleigh" variety. The top of the bell has an arch-shaped suspension loop brazed to it. A circular hole appears to be situated on either side of the loop and a dumbbell-shaped hole is in the base. An hemispherical outline with four conjoined, petal-like loops radiating from its curved margin is situated at either side of the basal perforation. The designs are depressed and bilinear. The sunken letter R occupies one of the hemispherical outlines and the letter W occupies the other. A circle is situated on either side of each letter. The bell contains a ferrous metal ball.

The letters that appear on the bell may be the initials of one Robert Wells, a founder who operated in Aldbourne, Wiltshire, from the late 18th century until his death in 1826 (Noël Hume 1970: 58). An English origin for the bell is supported by the fact that, in the United States, bells of this type have been found in areas most heavily influenced by English traders (Brown 1977: 79).

Miscellaneous

Unidentified Ferrous Metal Objects

The collection contains four incomplete, unidentifiable ferrous metal objects. The first of these, shaped like an elongated triangle, has rounded sides that converge in a slightly blunted point (Fig. 88a). It is 43.8 mm long, 7.7 mm wide and 1.5 mm thick and has broken through a 3.8-mm diameter hole at the base.

The next object has an incomplete, tapered shank 5.4 - 6.1 mm in diameter with a cylindrical head 10.9 mm in diameter and 6.2 mm high at the broad end (Fig. 88b). The artifact is 23.3 mm long overall.

A 42-mm long section of what appears to have been the shank of some piece of hardware makes up the third item (Fig. 88c). One end is round sectioned and has a slight curve in it. The other has a rhombic cross section and is straight. The piece is 6.3 - 6.8 mm in diameter at the round end but has tapered to 3.9 by 5.5 mm at the other.

The final item, a curved, 48-mm long, rectangular bar fragment (Fig. 88d), is 4.0 - 5.6 mm thick and 7.0 - 7.6 mm wide. It tapers in width toward one end and in thickness toward the other. Both extremities are broken, and one edge is battered.

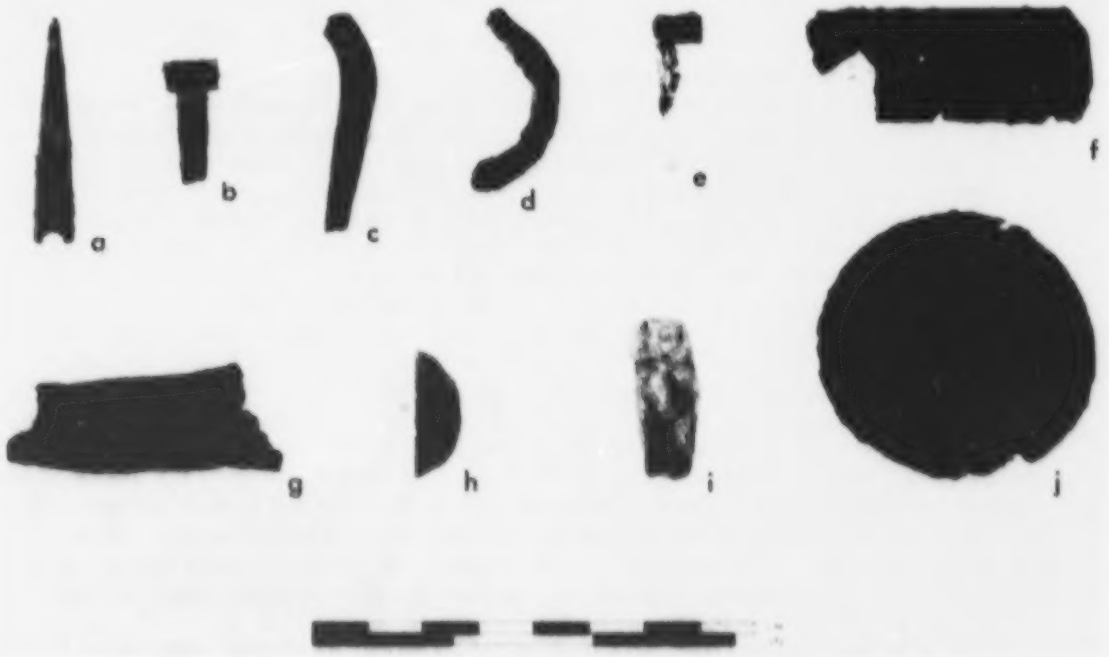

Figure 88. Miscellaneous items: a-d, unidentified ferrous metal objects; e-f, sheet iron box (?) fragments; g, leather strip; h, lead disc segment; i, lead bar fragment; j, japanned container cover. (Photo by R. Chan.)

Amorphous Ferrous Metal

This category comprises 13 pieces of formless ferrous metal.

Sheet Iron Container (?) Remnants

The site produced the extremely fragmentary remains of four sheet iron objects which may have functioned as containers, as well as a single, unattributable container cover. One of the proposed containers was round or oval in cross section, while the others had quadrilateral bodies. All of them are too fragmentary to be interpreted.

Round/Oval-Sectioned

What may have been a double-walled container is represented by a small rim fragment composed of two curved pieces of approximately 0.7-mm thick tinned sheet iron joined together at the rim by folding the end of the inner sheet over onto the exterior face of the outer sheet for a distance of 2.8 mm and then soldering the seam. The curvature of the specimen intimates that the container, if round, was between 160 mm and 180 mm in diameter.

Square/Rectangular-Sectioned

A fragment of what seems to have been the hinge section (Fig. 88e) of a small, quadrilateral box consists of a 30.2-mm long section of 1.8-mm diameter yellow metal wire with two pieces of tinned sheet iron looped around it. One end of the wire is broken, while the other has been cut. The sheet metal apparently made up some of the loops and eyes of the hinge. The major piece, which is quite fragmentary, is up to 15 mm wide. The other piece is a 6.0-mm wide strip which is looped around the broken end of the wire and projects out from it for a distance of 7.0 mm. Both pieces are about 1.3 mm thick.

A piece of sheet iron 52.0 mm long, 21.4 mm wide and 0.6 mm thick with a 2.5 - 2.7-mm high flange at one end and along one side may be a remnant of either the top or the bottom of a small rectangular box (Fig. 88f). A flange seems to have been present along the other side as well but has been broken off. The end without a flange is corroded and incomplete. The corners at the relatively intact end of the object have been cut off to eliminate the sharp points. No solder was noted along any of the edges.

A large container with a quadrilateral body appears to be represented by a fragmented sheet of 0.5-mm thick tinned iron estimated to have measured about 346 by 277 mm. One end of the sheet has been folded over to form a rim about 4.8 mm high reinforced with a sheet metal strip. The opposite end of the sheet has also been folded over, but in the opposite direction. The fold is 4.2 - 4.4 mm high and probably accommodated the flange of another sheet.

Unattributable Container Cover

A flanged disc of 0.4-mm thick japanned sheet iron probably served as a cap for some undetermined type of container (Fig. 88j). The object has an external diameter of 50.9 mm and an internal diameter of 48.3 mm. The slightly incurvate flange is 5.0 - 5.6 mm high.

Sheet Iron Scrap

Seventy-five scraps of sheet iron were enumerated. These are up to 69.1 by 50.8 mm and 0.3 - 0.8 mm thick with a mean and mode of 0.5 mm. Almost three-quarters of the specimens exhibit remnants of tin plating on their surfaces. The others may have been tinned as well but are too corroded to show such a coating. Thirty-one of the scraps have one or more cut edges, six of which have been folded while another has been rolled.

Miscellaneous Brass

Three brass items cannot be assigned to functional categories. The first of these is a strip of sheet brass 68.7 mm long, 12.4 mm wide and 0.01 mm thick (H. Unglik 1977: pers. com.) decorated with four fine ribs that extend almost its full length. The other two items consist of related pieces of flat cast brass, each with one filed, bevelled edge.

Miscellaneous Lead

Miscellaneous lead items include four small melted pieces; four folded pieces of 0.3-mm thick sheeting; one thick strip 56 mm long, 3.4 mm wide and 1.5 mm thick; one battered, rhombic-sectioned bar fragment 30.8 mm long, 11.8 mm wide and 7.3 mm thick (Fig. 88i); and one 24.6-mm long, 9.0-mm wide and 2.5-mm thick section cut from a disc (Fig. 88h). One of the melted pieces has wood grain impressions on one side and the lightly incised letters IM or WI on the other.

Melted Glass

Eight small pieces of melted or severely heat distorted lead glass probably represent either medicine bottles or tableware. While most of the fragments are colourless, two have a distinct greenish cast.

Miscellaneous Stone

Twenty-four unretouched flakes apparently produced during the preparation of cores or chipped stone tools were found in various excavation units. Materials include chert (15 specimens) and quartzite (9 specimens). Seven specimens exhibit striking platforms and six have cortical remnants on their dorsal faces.

There is also a single, primary decortication flake which has had its distal (?) end percussion flaked for a distance of 38.6 mm. The 14.6-mm high modified margin is jagged and does not show any use-wear. The material is quartzite.

Unidentified Bone Objects

Four incomplete, elongate objects fashioned from pieces of medium to large mammal bone (A. Rick 1977: pers. com.) could not be positively identified on the basis of the remains. The first of these (Fig. 89b) is 74.3 mm long and tapers gradually to a rounded point which is use polished and scarred. The sides and one of the faces are relatively flat and exhibit cut marks made with a metal knife. The remaining face is slightly rounded and composed of cancellous tissue. The artifact is 6.8 mm wide at the broken butt end and up to 5.0 mm thick.

The second item (Fig. 89c), both ends of which are broken, is a posterior fragment of an identical object. It is 78 mm long, 9.0 mm wide at the butt end and up to 4.2 mm thick. The butt end has been thinned on one side.

An extrapolation of the measurements of the foregoing fragments reveals that the objects would have been approximately 120 mm long. Although the chipped and polished tip of the anterior fragment intimates that the objects may have been used as awls, their long, brittle shafts would tend to rule out such an interpretation. The thinned butt of the posterior segment suggests that the artifacts may have been hafted in socketted handles or shafts.

Object number three (Fig. 89a), composed entirely of solid bone cortex, has an oval-sectioned shaft 126.4 mm long, and up to 9.1 mm wide and 7.5 mm thick. The shaft tapers toward either broken end, one of which has a rhombic cross section, while the other is round-sectioned. The surface of the artifact is covered with long, narrow cut marks produced by a metal blade. Although far from certain, it may be that this object served as an arrowpoint (B. Gordon 1978: pers. com.).

The final item (Fig. 89d) is a smoothed and shaped section of moose metacarpal (A. Rick 1977: pers. com.) which tapers toward one end. The specimen, both ends of which have broken off, is 70.5 mm long, 12.8 mm wide and 6.8 mm

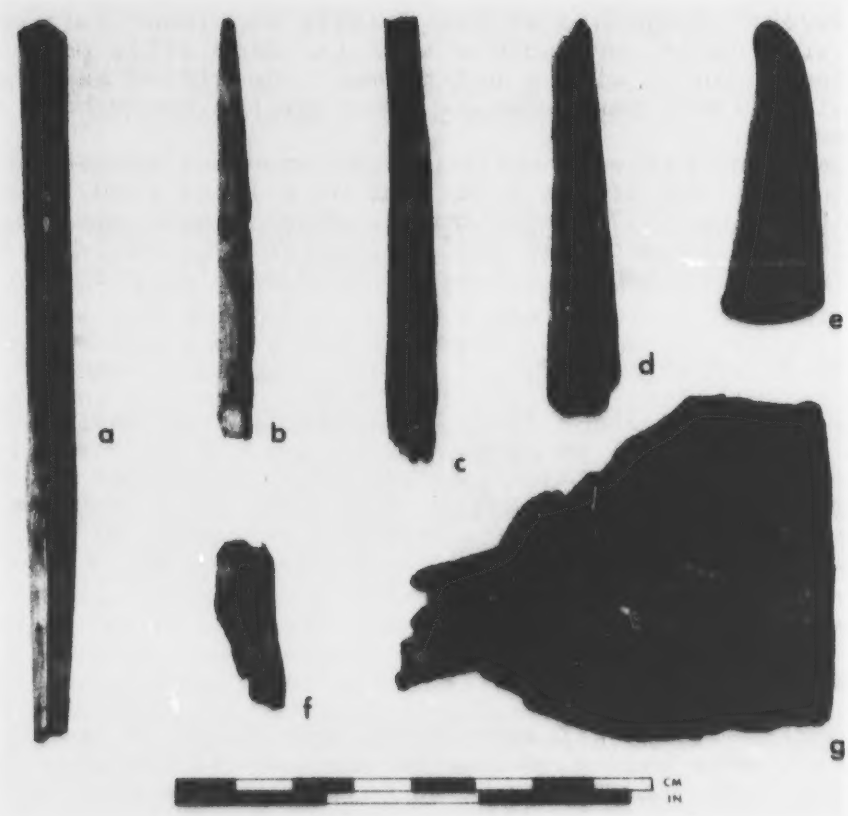

Figure 89. Miscellaneous bone: a-d, unidentified bone objects; e, cut antler tine; f, cut bird bone; g, cut moose antler. (Photo by R. Chan.)

thick at the butt end. The surface exhibits fine cut marks made by a steel knife.

Miscellaneous Worked Bone and Antler

The first item in this category is a short section of moose (Alces alces; A. Rick 1977: pers. com.) antler sawn off neatly at one end (Fig. 89g). Another, oblique saw cut that is 2.0 mm wide and only passes about one-third of the way through the fragment is situated just above the aforementioned one. The opposite end of the object is quite rough, having been chopped off with a heavy knife. A small area near this end exhibits slight wear polish.

A related item consists of a 51-mm long antler tine that has been cut off square with a saw (Fig. 89e). The distal end is polished.

Several fragments of the maxilla and lower left mandible of a large canid, probably a wolf (A. Rick 1977: pers. com.), have been painted with a red pigment identified as ochre (M. Salmon 1975: pers. com.). Most of the bones have also been burned.

Only one piece of worked avian bone was recovered. It is the proximal end of the left ulna of a large bird, possibly a goose (A. Rick 1977: pers. com.), whose distal portion has been removed by girdling the shaft with a knife (Fig. 89f). The fragment probably represents bead manufacturing waste.

Leather and Hide

Of the four items that fall into this category, one is a strip of leather 55 mm long, 15.7 - 20.3 mm wide and 1.6 - 1.9 mm thick with straight but slightly divergent sides and uneven, torn ends (Fig. 88g). The other three specimens are remnants of a deteriorated, probably untanned, hide (A. Douglas 1977: pers. com.). The largest piece measures 68 by 40 mm.

Birchbark

Small scrolls (10 specimens) and sheets (8 specimens) of birchbark were uncovered in the west end of the main house and pits A-B. The scrolls were up to 105 mm wide with an unfolded length of about 280 mm (294 sq. cm). The flat pieces were up to 36 by 49 mm (17.6 sq. cm). This material may have been intended for or resulted from the production or repair of birchbark items.

DISCUSSION AND CONCLUSIONS

Four temporally distinct cultural components were encountered at the Nottingham House site. The earliest of these dates to AD 200-AD 750 and is represented by the two Besant Side Notched atlatl points and possibly some of the other stone implements and debitage. The exact assemblage cannot be determined because of the lack of definitive stratigraphy in those areas producing the lithic material. Characteristic of the Besant Phase of the Napikwan cultural tradition in the Northern Plains area (Calder 1977: 88; Reeves 1970: 162), Besant points have been recovered from several other sites on Lake Athabasca (B. Gordon 1978: pers. com.) and apparently represent the influx of Northern Plains culture traits into the Athabasca region. The paucity of the constituent artifacts and the lack of coetaneous features at Nottingham House intimate that little more than a temporary hunting camp is involved.

The second component relates to the 1802-1806 occupation of the site by both the Hudson's Bay Company and North West Company. As it is the major one, it will be discussed in detail later.

The intrusive human burial makes up the third component. Inhumed in a carefully dug rectangular grave and covered with boards, the deceased was an adult male Amerindian with possible white admixture (Appendix A). No artifacts were found in association with the interment and this coupled with the absence of comparative data on similar burials in western Canada makes it extremely difficult to interpret and date. Fortunately there is some comparative data from farther afield: J. Rodeffer (1973: 112) describes near identical burials from two sites in southeastern Washington. Attributing them to 1800-40, Rodeffer (1974: pers. com.) believes that plank-covered burials are prototypes of box burials but allows they may be nothing more than "poor relations." In light of the isolated nature of English Island, either interpretation could hold true for the Nottingham House inhumation. As for the proposed temporal span, the archaeological and historical evidence suggests that either terminal date is approximately 10-15 years too early. That the grave was dug through the burned floor and collapsed roof and southeastern wall of the main house implies that the aforesaid features were thoroughly rotten and overgrown at the time of internment. Considering the climate and the nature of the soil in the area, it is improbable that such a degree of decomposition could have been achieved before about 1815. Regarding the other terminal date, it is very unlikely that anyone would have been interred on English Island much after

1851 when the Nativity Mission was dedicated in Fort Chipewyan (Anonymous n.d.). The church would doubtless have pressed for Christian burials in the local cemetery immediately thereafter.

The identity of the interred individual remains undetermined, as does the exact cause of death. However, in that the deceased was not buried at nearby Fort Chipewyan (1800-present) or Fort Wedderburn (1815-21), it may be assumed that he was not affiliated with either post or associated settlement. There is also the possibility that he was not a Christian. The absence of trauma in the skeletal material suggests that the deceased was not murdered but either drowned or succumbed to a fatal short-term disease. Such a contention is supported by the neatness of the grave and the board covering.

The fourth and final component is a 20th-century one represented by two fireplace rings, a hide working frame, several small hide tanning holes and numerous artifacts (Appendix C), the most common of which were tin cans. This assemblage probably derives from an Indian summer camp, one of which occupied a portion of the site during the 1977 field season, and the adjacent island in 1972 and 1973.

Returning to the Nottingham House component, the post (whose identification is confirmed by the recovered features and artifacts) was found to consist of two Hudson's Bay Company buildings (the main house and storehouse), two North West Company watch houses, the post's garden area and four borrow/trash pits.

Typical of the Boreal Forest Region, the Hudson's Bay Company structures were constructed using different combinations of post-on-sill and post-in-ground techniques. In the main house, the corner and end posts were apparently tenoned into the sills, while the other uprights were embedded in the ground. In the storehouse, it was the corner uprights that were set in the soil while the others were post-on-sill. Although there is the possibility that these differences reflect the use of certain combinations of techniques in the construction of specific sizes and/or types of buildings, it is more likely that they are simply due to the fact that the main house was erected under the direction of Peter Fidler, while the other structure was constructed by Thomas Swain in Fidler's absence.

The vertical wall components of the two buildings were squared, while the horizontal ones were either flattened or partially squared. The interstices were chinked with silty to sandy clay tempered with varying amounts of grass. The interior of at least the main house was "plastered" with a thin layer of mud.

Both structures had roofs composed of "roofing sticks" (0.12 - 0.3-ft diameter poles) chinked and covered with the same material that was used to chink the walls. Sheets of bark, probably spruce, were used to weatherproof the roof of the main house and may also have been utilized on the stores building.

The fireplaces in the main house had masonry bases composed of angular and glacially rounded rocks set in grass-tempered clay. Their chimnies consisted of a pole framework covered with the same material used to bond the stones.

The construction techniques employed by the North West Company were very similar to those used by their competition. About the only difference worth noting is that the former's structures were apparently entirely of post-on-sill construction. It could not be determined if the building interiors were "plastered" or if bark was used to weatherproof the roofs.

All of the buildings exhibited charred components indicating that they had been burned. As it is unlikely that the English would have destroyed their own post, the inferrence is that the French put a torch to it after Fidler and his crew departed in the spring of 1806 so that the Company would have nothing to return to should it have changed its plans to abandon Athabasca.

The garden area, located to the south of the building complex, could not be thoroughly investigated because of a lack of time. Information concerning the number of plots and their dimensions is therefore lacking. This situation is alleviated somewhat by the post journals which reveal that the initial garden measured 45 by 51 ft. Unenclosed at first, the garden area was stockaded early in 1805, indubitably to keep the French from pilfering the produce. Turnips and potatoes were the principal crops (HBCA, B.39/a/2, fol. 47; B.39/a/3, fol. 7; B.39/a/4, fol. 5, 17-19).

Constituting a roughly triangular configuration that measured 29.5 ft (NW-SE) by 24 ft (NE-SW), the borrow/trash pits occupied the area between the southern watch house and the men's quarters in the main house. Doubtless formed by the removal of the clay subsoil for use in chinking the walls and roofs of the various structures, all of the pits were subsequently used for the disposal of trash by the Hudson's Bay Company. This was indicated by the presence in each depression of at least one fragmentary object that had crossmending components in the main house.

Although they were not located, several other features are known to have been present at the site. These include a fish shed, saw pit, flagstaff and a set of railings.

The fish shed, also called the provision store and victual shed, was the second structure to be built at the post. Its construction commenced on 21 December 1802, 10 days after the completion of the main house. The work went quickly at first with the walls being put up to their full height by the 23rd. The project was then abandoned until 11 January when the men began cutting poles for the roof. The ridge pole was set in place two days later. The work then became sporadic, taking 42 days to get the roof on. This done, the shed was ready to be mudded and floored, tasks taking 19 and 20 days to finish, respectively. The completion of the building was marked by the hanging of the door on the 16th of

March 1803. All the fish on hand (459 in all) were then loaded into it (HBCA, B.39/a/1, fol. 14, 18; B.39/a/2, fol. 40, 41; B.39/a/5a, fol. 11, 12).

Although the exact location of the shed is not specified in the journals, its probable site can be inferred from the information provided therein. The entry for 12 January 1806 states that several North West Company men "cleared away a spot near our fish shed within 3 feet of it & within 5 yards of our Warehouse & near the Men's Door" so that they could put a tent there (HBCA, B.39/a/5a, fol. 11). This intimates that the shed was near the south corner of the main house, the likeliest spot being just to the north-northwest of pit D. The size of the structure remains undetermined but was probably smaller than that of the one proposed for construction at Fort Wedderburn in September of 1820. It was to measure 20 by 12 ft with walls standing 8 ft high to allow a large ice cellar underneath (Krause 1976: 29). The shed at Nottingham House does not appear to have had such a cellar.

The saw pit was "put up" on 15 October 1802 to facilitate the production of boards and planks for construction purposes (HBCA, B.39/a/1, fol. 10). The absence of a sufficiently large depression at the site and the wording "put up" suggest that the "pit" was not dug into the ground but consisted of a set of wooden trestles. Its location is problematical.

The flagstaff was fashioned from a pine tree felled on 2 November 1802. However, a flag did not fly from it until New Year's Day 1803 (HBCA, B.39/a/2, fol. 38, 41). The staff was probably located at the northeastern end of the building complex where it would have been readily visible from the lake.

The railings were put up during January and February of 1806 to keep the mischievous Frenchmen away from the main house. Composed of small pines, the railings extended from the storehouse to the fish shed and from the latter to the men's quarters in the main house. Another section was placed "before the [main] house ... to keep the Dogs from being killed by the Canadians." Three gates appear to have provided access to the enclosure (HBCA, B.39/a/5a, fol. 11-13).

Although neither the archaeological nor the historical record is complete enough in itself to communicate the exact layout and appearance of the Nottingham House complex, a combination of the two does provide sufficient data for a fairly detailed reconstruction (Fig. 90).

The Nottingham House site yielded 5707 intact and relatively intact objects, as well as 1006 fragments representative of another 99 objects. The majority (82 per cent) of the material was recovered from the main house excavations which encompassed just 38.6 per cent of the total excavated area, corroborating that this was the primary activity area at the site. A secondary concentration of artifacts (9.2% of the total) was encountered in pits A-B which functioned as the post's main trash dump. The other two borrow/trash pits contained a combined total of only 2.2 per cent of the total artifact assemblage, suggesting that they

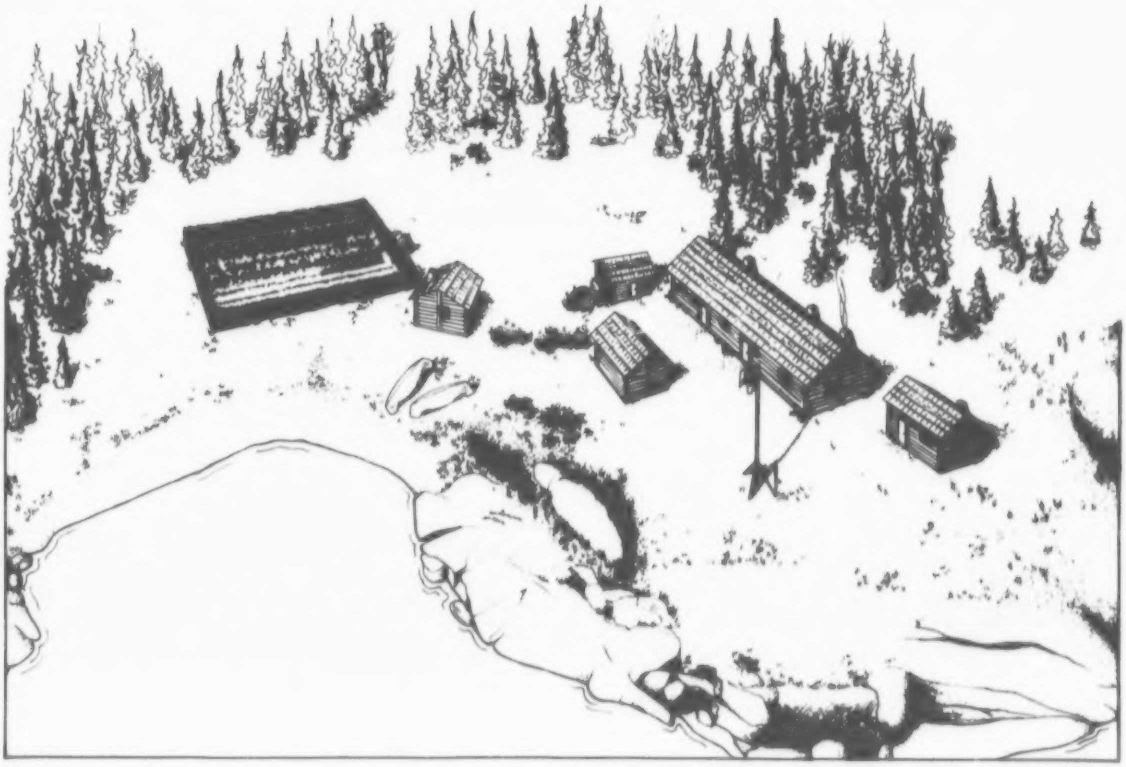

Figure 90. Artist's conception of the probable appearance of Nottingham House in late September 1805. (Drawing by D. Kappler.)

were dug at a later date and never achieved the same degree of utilization. The low artifact levels in the three remaining structures (southern watch house - 3.4%; northern watch house - 0.9% and storehouse - 1.9%) are in keeping with what would be expected of a low activity area such as a storage facility or a small, short-term dwelling site.

The recovered artifacts fall into six functional and one residual category (Table 25). Items of a **Personal** nature are the most numerous, there being an estimated 3810 objects (65.6% of the total assemblage) which constitute seven functional classes (Table 26). Artifacts identified as ornaments preponderate, with glass beads being the most prevalent type. The latter, numbering 3610, are primarily circular "embroidery" beads. Using Conn's (1972: 7) size groups, 11.7 per cent of the 2887 circular specimens are of "seed bead" size (2 mm or less in diameter), 45.7 per cent are of "intermediate" size (between 2 and 3 mm in diameter) and 42.6 per cent are of "pony bead" size (3 - 5 mm in diameter).

Table 25. Relative Quantities and Percentages of the Nottingham House Artifacts

Artifact Category	Whole/Relatively Intact Objects	Fragmented Objects		Total No. Objects	%
		(Fragments)	(Objects)		
Personal items	3752	464	58	3810	65.6
Domestic items	22	202	28	50	.8
Subsistence and defence	1758	9	0	1758	30.2
Tools and hardware	159	162	12	171	3.0
Business items	3	0	0	3	<.1
Transportation	2	0	0	1	<.1
Miscellaneous	12	169	1	13	.2
Total	5707	1006	99	5806	100.0

Table 26. Classes of Personal Items and Their Relative Frequencies (Total No. of Artifacts in Each Category on Which the Minimum Object Count is Based is Shown in Parentheses)

Functional Category		Minimum Number of Objects	
		Quantity	Percentage
Ornaments	(3688)	3684	96.7
Clothing and Footwear	(71)	60	1.6
Smoking Paraphernalia	(302)	41	1.1
Containers	(117)	13	.3
Pocket Tools	(7)	7	.2
Toiletries	(17)	4	.1
Reading Material	(14)	1	<.1
Total	(4216)	3810	100.1

As for actual size populations within the circular group, diameter frequency polygons for the three most numerous circular bead types (Figs. 91-93), as well as for all the monochrome circular beads combined (Fig. 94), indicate that approximately eight sizes are represented. The postulated size groups have the following modes: 1.4, 1.8, 2.1, 2.4, 2.7, 3.1, 3.4 and 3.8 mm. The modes are separated by 0.3-mm and 0.4-mm intervals which are in accordance with the inter-mode intervals derived for a number of the bead populations on an early 20th-century Venetian sample card (personal observation). This suggests that the postulated sizes may be historically valid.

Although the wound bead sample is relatively small, diameter frequency polygons suggest that there are approximately three populations of round (WIb) beads and two

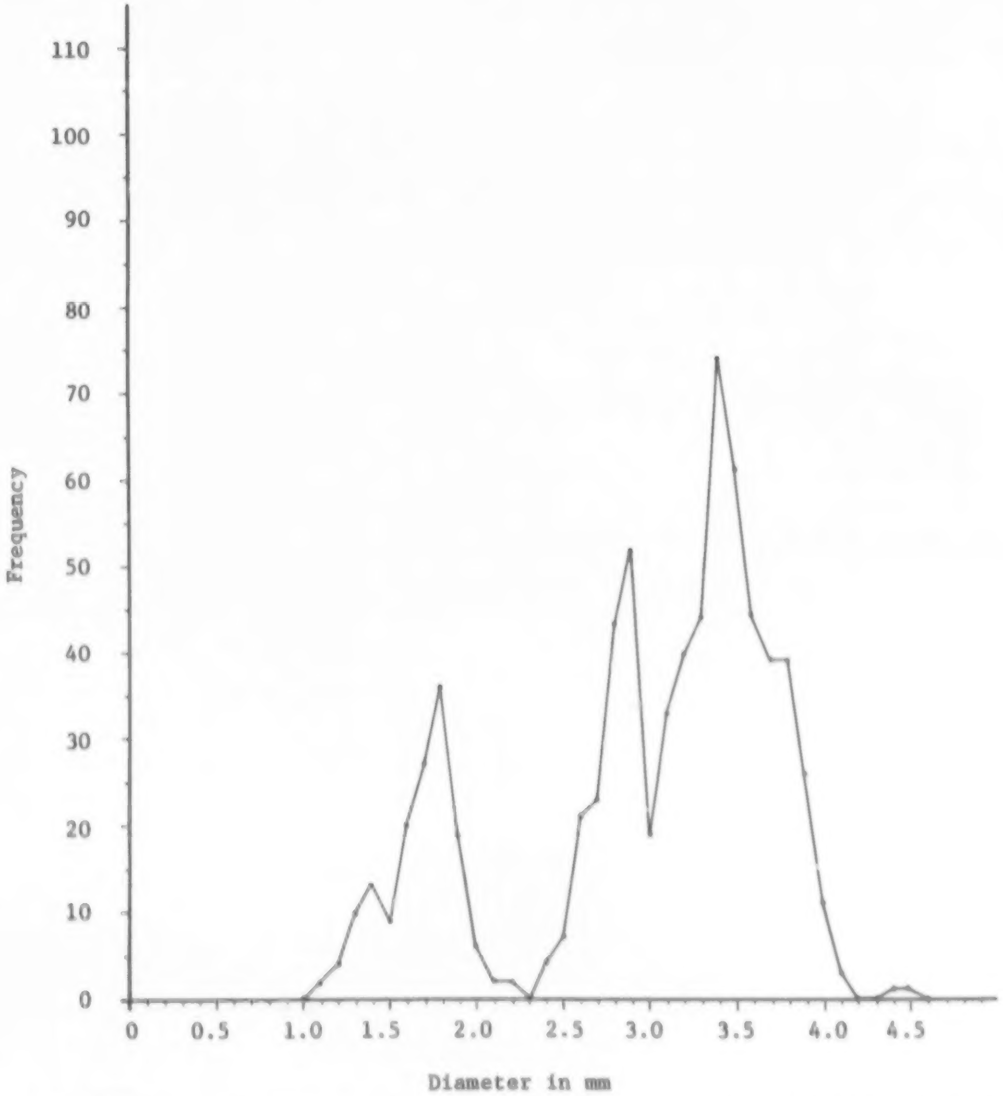

Figure 91. Circular, translucent oyster white bead (IIa12) population as identified by diameter frequencies (N = 737). (Drawing by S. Epps.)

populations of oval (WIc) beads. The round-bead populations have modes of 3.6, 5.0 and 6.0 mm (Fig. 95), while the oval populations have modes of 3.1 and 4.6 mm (Fig. 96). White beads are the most common, followed in frequency by those of blue, red, green and yellow, respectively. Rose wine, black, gray and decorated specimens are present in only minor quantities (Fig. 97). This sequence compares favourably with

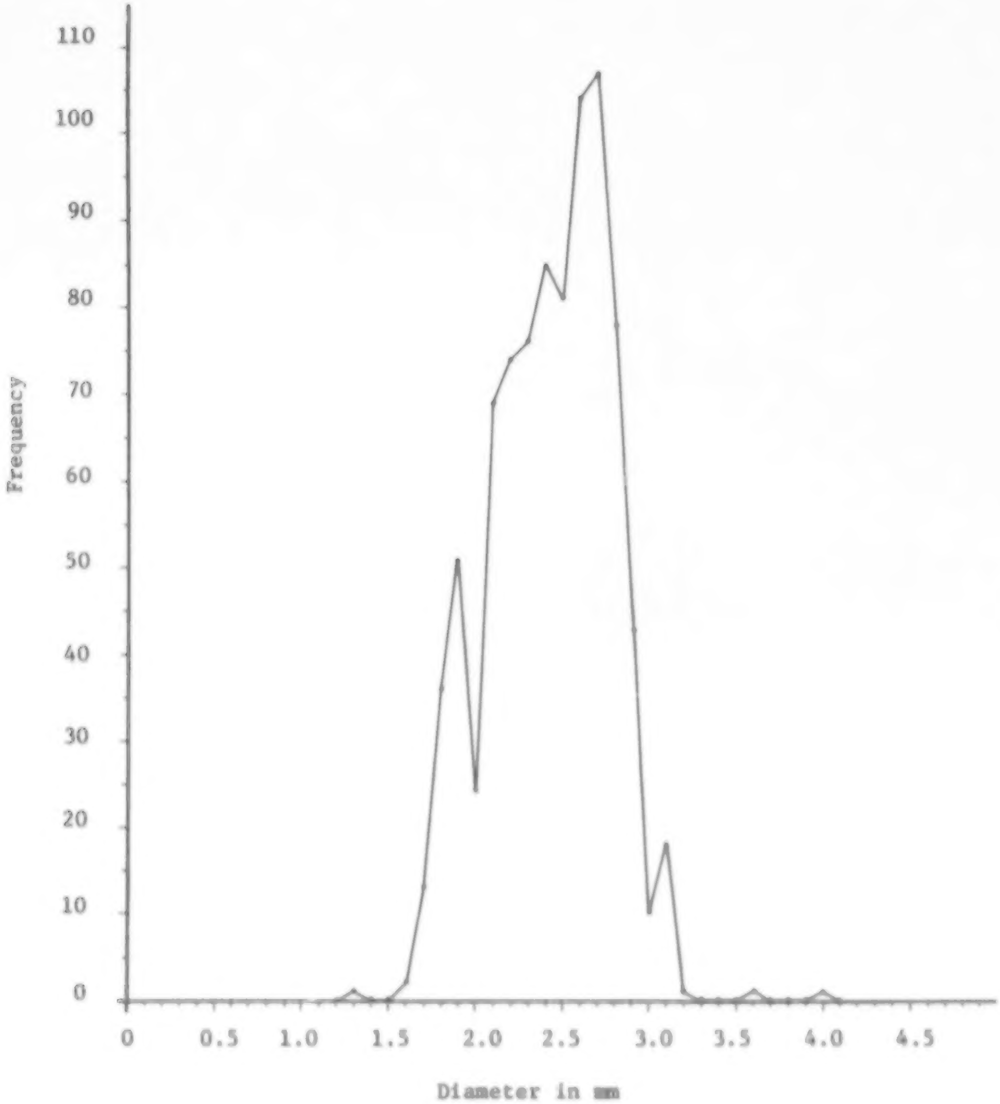

Figure 92. Circular, opaque white bead (IIa14) population as identified by diameter frequencies (N = 875). (Drawing by S. Epps.)

those derived for bead collections from several other fur trade sites in western Canada (Kidd 1970: 172-76; Nicks 1969: 185-86; Noble 1973: 143).

Glass beads were a common form of adornment among the indigenous population. These colourful baubles were frequently sewn to garments and sundry other items such as leather bracelets, garters, moccasins, shot pouches and medicine bags (Williams 1969: 145-47, 150, 164). Strings of beads and other trifles were suspended from the noses and ears of either sex, the women being fond of three or four strings about six inches long in each ear (Williams 1969: 148-49, 165, 178). The women also hung beads in their hair (Williams 1969: 149, 165). Long "necklaces composed of several strings of beads fancifully variegated" were worn by both men and

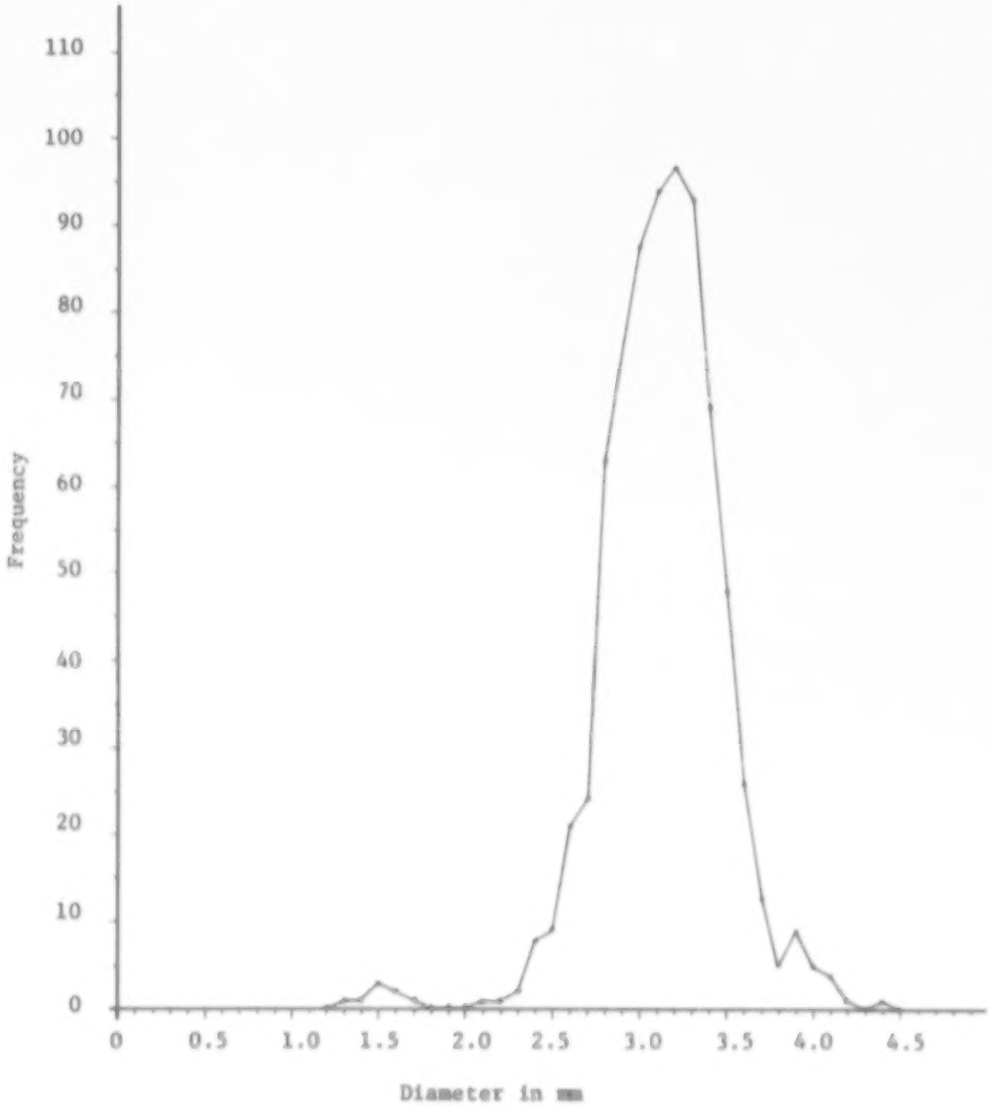

Figure 93. Circular, transparent medium turquoise blue bead (IIa*) population as identified by diameter frequencies (N = 773). (Drawing by S. Epps.)

women (Williams 1969: 150, 165).

Other objects that apparently functioned as beads include eight modified clay pipe stem fragments and a perforated lead

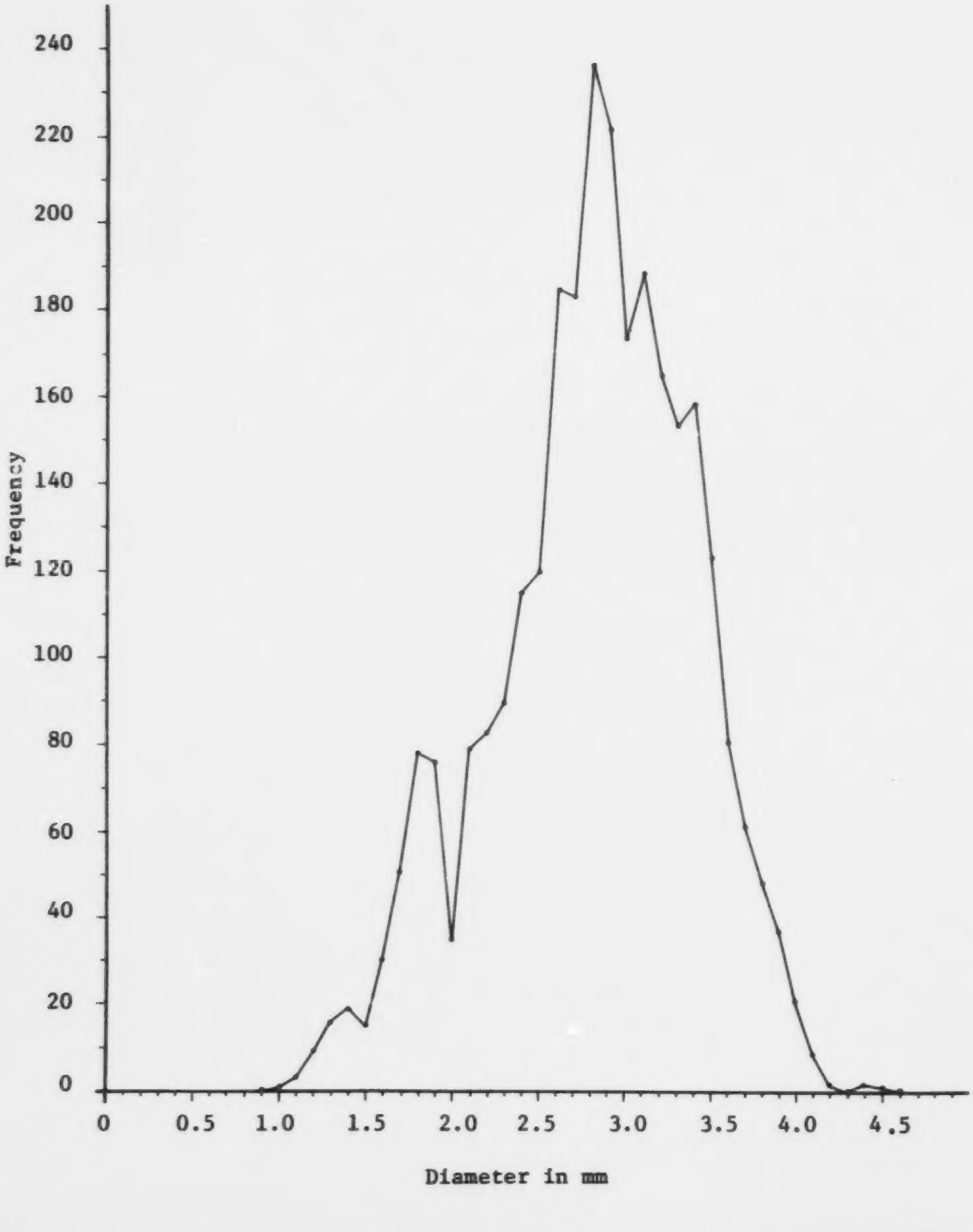

Figure 94. Circular IIa bead population as identified by diameter frequencies of all measurable specimens (N = 2872). (Drawing by S. Epps.)

ball. The relatively large size of these items suggests that they are necklace components.

Trade silver is represented by four brooches, an earbob and a ring. Most of these items are unmarked and probably originated in England, the traditional source of Hudson's Bay Company silverwork (Langdon 1966: 19). However, one small brooch exhibits the touchmark of Robert Cruickshank, a Montreal silversmith and merchant who was in business from 1774 to 1807 (Traquair 1973: 58). Undoubtedly the most substantial producer of silver trade items, Cruickshank supplied the North West Company, the XY Company and several independent traders (Barbeau 1942: 13; Langdon 1966: 62; H. Rogers 1978: pers. com.). He did not, however, supply the Hudson's Bay Company (Langdon 1966: 19). It is therefore

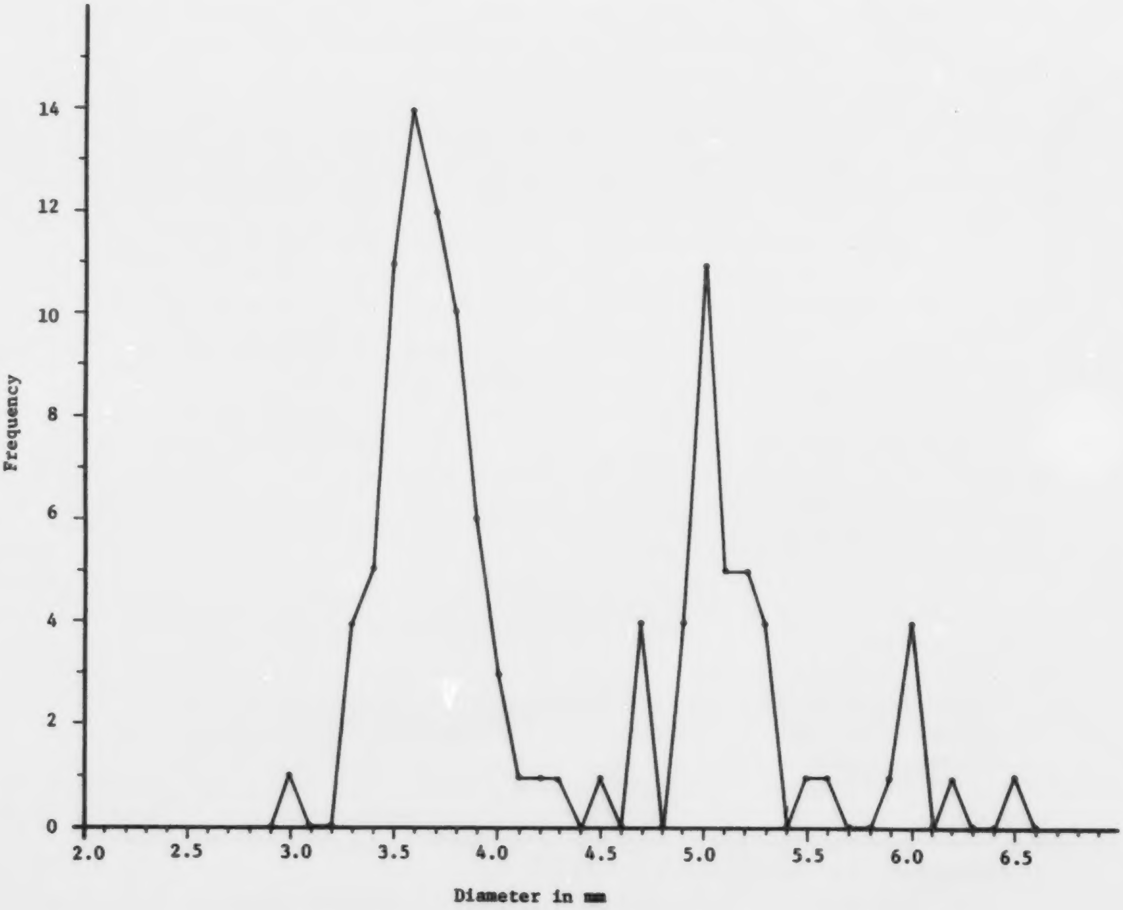

Figure 95. Round bead (WIb) population as identified by diameter frequencies (N = 179). (Drawing by S. Epps.)

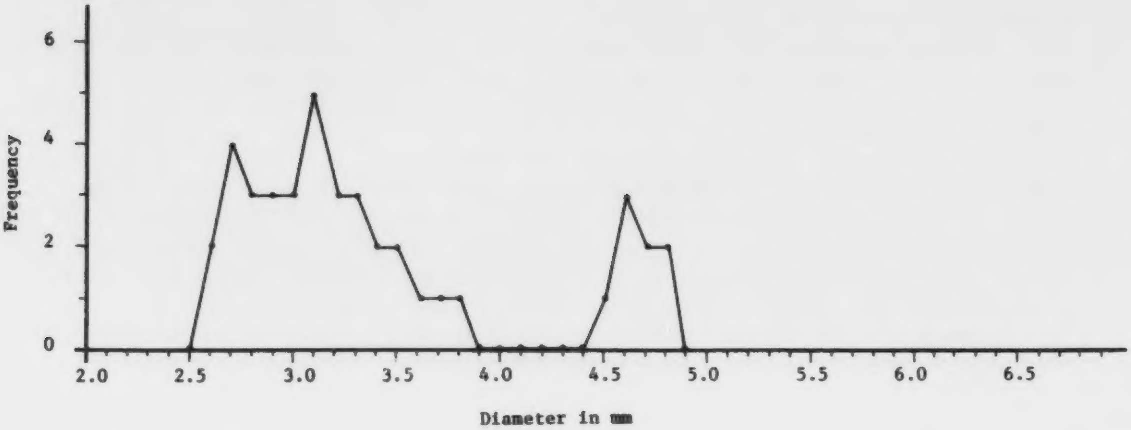

Figure 96. Oval bead (WIc) population as identified by diameter frequencies (N = 42). (Drawing by S. Epps.)

probable that the marked brooch was not among the goods offered by the Bay men at Nottingham House but was dropped by an Indian who had obtained it from the nearby North West Company post.

As the name implies, trade silver was intended for barter with the native population. However, such items as brooches were occasionaly worn "à la façon sauvage" by the traders themselves (Barbeau 1942: 12).

The remaining ornaments fall into three functional groups: (1) those used to embellish garments and other articles (66%); (2) those worn on or suspended from a portion of the body (16%); and (3) those that could have been used either way (18%). The first group is composed of the iron and yellow metal tinkling cones and blanks. Commonly attached to the fringe elements of garments and other articles, the cones produced a pleasant tinkling sound when the fringe moved.

The ornaments constituting the second group include the brass finger rings and the brass tube that may have served as a hair pipe.

The constituents of the third group are the sheet iron pendants which could have been used to adorn garments, noses or ears; the sheet iron discs that may have embellished clothing, ears or hair; the vermilion, a product of China (Hanson 1971), was applied to the skin, as well as clothing and other items; and the silver wire which is not a trade item but was probably utilized in the manufacture or repair of ornaments, or for inlay work.

While most of the ornaments were commercially produced in Montreal, Europe and Asia, 59 of them are homemade. The latter items include the lead and pipe stem beads, the tinkling cones, the brass tube, and the sheet iron pendants and discs. All of the yellow metal objects appear to have been fashioned from discarded kettles.

Ornaments not present in the artifact collection but listed in the post journals (HBCA, B.39/a/2, fol. 65-66; B.39/a/5b, fol. 76-77) include plated wrist bands and ostrich feathers. The latter probably functioned as hat plumes.

The artifacts that come under the heading of clothing and footwear can be divided into three groups: (1) footwear, (2) textiles and (3) clothing fasteners. The first group is represented by a single item: a small portion of what appears to be the sole of a shoe or moccasin. The absence of chromium

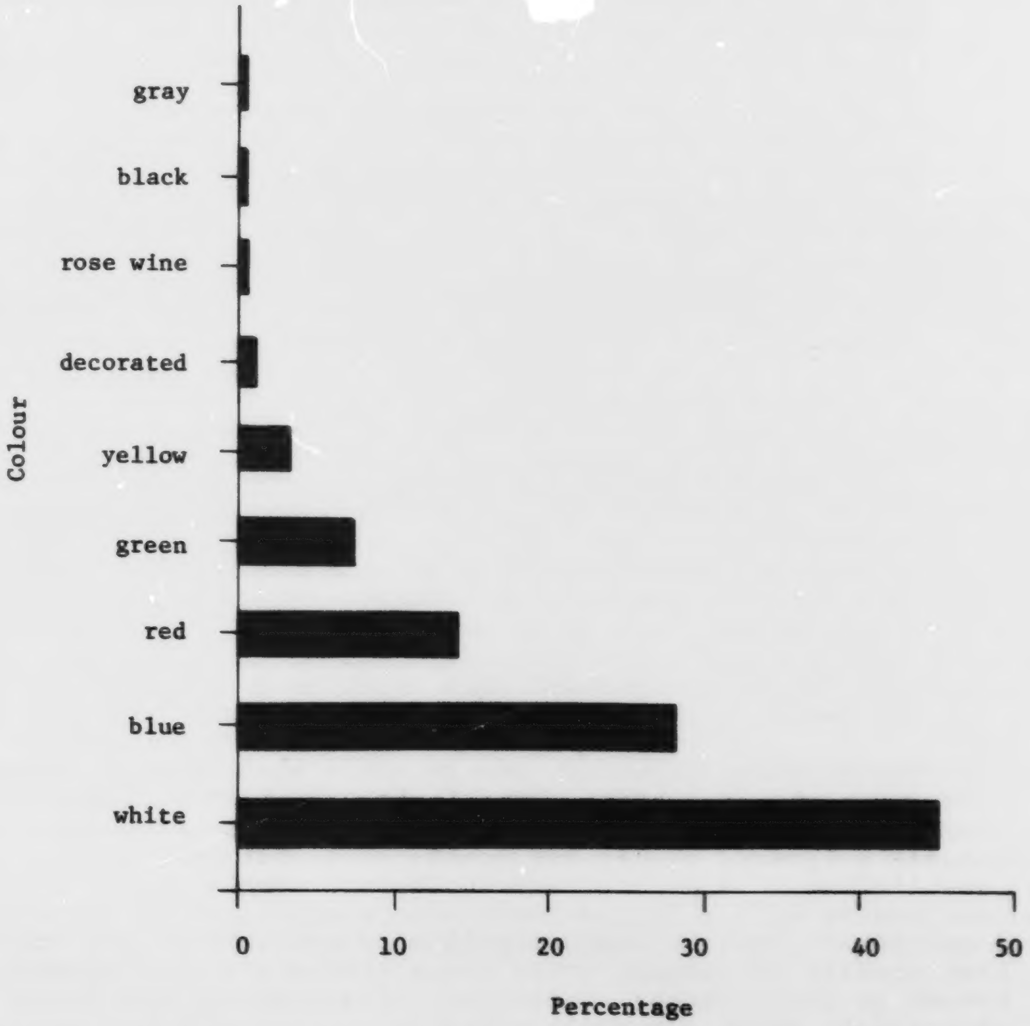

Figure 97. Bead colour frequencies (N = 3610). (Drawing by S. Epps.)

tanning agents in the leather intimates that it may not have been commercially produced.

The textiles are composed of dark blue wool, an unidentified reddish purple fibre, a combination of flax and yellow metal and what may be strands of spruce root. The first three fabrics are of European manufacture, while the last one is most likely an autochthonic construct. The flax and yellow metal textile is in the form of an approximately 12-mm wide band and may well be the "yellow orrice lace" noted in various lists of trade goods. The other fabrics are not distinctive enough to be correlated with articles in the trade lists.

The types of bulk cloth, habiliments and furnishings that were being traded at Nottingham House (HBCA, B.39/a/2, fol. 65-68; B.39/a/5b, fol. 76-80) include

Baize, green
Cloth, blue (corduroy, common and fine light)
  green (corduroy)
  red (corduroy)
  yellow (fine)
Duffle
Flannel
Frocks, duck
Gartering
Handkerchiefs, silk (large and small)
  linen
  "soosee"
Hats, common
Jackets, white
Lace, orrice (white and yellow)
Linen, printed
Sashes
Shirts, calico (for adults, youths and infants)
  common (checked and white)
  cotton
  flannel
Stockings, worsted and yarn
Trousers, cotton and duck

The clothing fasteners consist of a small buckle, three cuff links and 55 buttons. The latter are fairly diversified, there being 28 varieties constituting ten types of three materials (brass, pewter and bone). The most common type, constituting 30.9 per cent of the button sample, is made of cast pewter with a ferrous metal omega shank set in a low, domed boss. Next in frequency (29% of the sample) are buttons that consist of stamped brass discs with alpha wire shanks brazed to their backs. The other types occur in far lesser quantities.

Plain and decorated buttons are present in about equal quantities. Of those that are decorated, almost three-quarters are embellished with designs incorporating elements of the Hudson's Bay Company's coat of arms. Most of these buttons were found scattered throughout the main house, intimating that they were worn by the inhabitants. The majority of the "Company" buttons are marked as having been produced by Samuel Firmin of 153 Strand, London, who supplied buttons to the Hudson's Bay Company from 1792 to 1795 (HBCA, A.25/3, fol. 48, 85; Lowndes' London Directory 1792: 58; 1796: 61).

Two other buttons that are silvered have Peter Fidler's initials engraved on them. The back of one of the specimens is marked MH&E. Unfortunately, it has not been possible to determine the name of the company represented by the mark.

Quality marks are rare, being noted on only three specimens. The marks consist of PLATED on a silvered button, and GILT.GILT.GILT on two gilded specimens.

The buttons are of diverse sizes, 10.2 - 33.5 mm in diameter (Fig. 38). While the measurements of many of the specimens do not form any specific patterns, 59 per cent of them make up three fairly distinct groups: (1) 14.3 - 15.6 mm (15.0 mm mean and mode); (2) 16.0 - 16.4 mm (16.2 mm mean and 16.4 mm mode); and (3) 21.0 - 21.8 mm (21.4 mm mean, and 21.2 and 21.4 mm modes). The historical and archaeological evidence suggests that the buttons in the first group are of "waistcoat" size, while those in the third group are of "coat" size. The middle group does not seem to have a counterpart in the historical documentation and may simply represent a slightly larger form of waistcoat button.

Smoking paraphernalia is represented by the remains of at least 38 clay tobacco pipes, one stone pipe and a tobacco box, as well as a claystone pipe blank. The clay pipes are of two types. The first has a plain, unmarked, conical bowl whose mass is at an angle of about 110 degrees to the stem. The latter is estimated to have been between 114 and 180 mm long. The second type has a similarly shaped bowl with an oval peg spur at its base. The bowl is at an angle of 120 degrees to the stem which appears to have been 84 - 133 mm long. The stems of both types have bevelled bites.

The pipes are generally of a poor quality. Little care seems to have been taken in removing mould marks from the majority of the specimens. Furthermore, only one pipe was subsequently smoothed to obliterate some of the mould mark remnants and surface imperfections. In a number of cases, the stems and bowls have small cracks in them because the clay was too dry when the pipes were moulded. Thus, the indication is that the manufacturers' objective was quantity and not quality.

The pipes are of English origin as indicated by their configurations and the TD markings on the spurs of several specimens (C.F. Richie 1977: pers. com.). Although it cannot

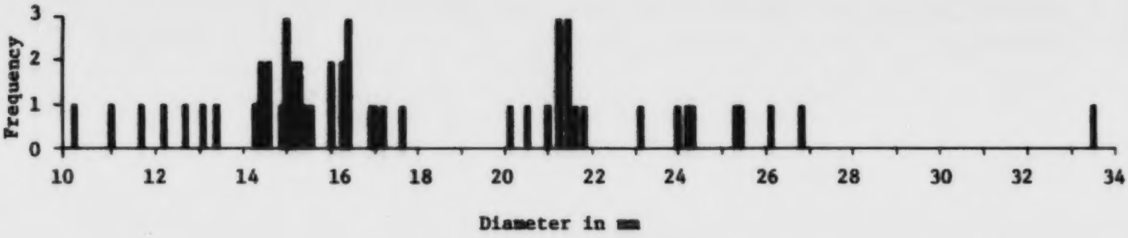

Figure 98. Button diameter frequencies (N = 54). (Drawing by S. Epps.)

be determined who made the pipes, it is probable they were produced in London, the major centre of pipe making in early 19th-century England (Oswald 1960: 46).

A number of the pipes continued to be used after their bowls and stems broke. This implies that pipes were not readily discarded but were utilized until they were functionless.

Stone pipes are represented by a carved steatite fragment and a claystone blank. The former is probably from a native-made pipe, while the latter indicates that claystone pipes were being produced at the site, possibly for trade.

The tobacco box, used to carry prepared tobacco on the person, is of the type that had a burning glass. The latter was employed for pipe lighting when sunlight was available. At other times, the smoker had to resort to the use of a flint and steel, a much more tedious process. The boxes bartered at the post were made of japanned and plain iron (HBCA, B.39/a/2, fol. 65; B.39/a/5b, fol. 76). Individual burning glasses could also be obtained (HBCA, B.39/a/2, fol. 66; B.39/a/5b, fol. 77).

Four types of tobacco were available at the post. These are, in descending order of popularity: Spencer's twist, Brazil, roll and cut (H.B.C.A., P.A.M. B.39/a/2, fol. 68; B.39/a/5b, fol. 80).

The 13 containers that are included in this section are of types used primarily to store and transport commodities of a personal nature, such as ointments, medicines and spirits. One of the containers is a very small, round or oval tin plate box. Its size and form suggest that it was used to carry something like pills or snuff on the person.

Another three specimens are English gallipots, one of which is white salt-glazed stoneware, while the others are creamware. The stoneware and one of the creamware specimens are in the 18th-century hemispherical form. The other creamware jar is cylindrical. All three have the usual projecting rim for a parchment cover which would have been tied on. None of the jars exhibit much use-wear, suggesting that they were discarded after their initial use, rather than being reused for some other purpose, e.g. as drinking vessels.

This implies a certain degree of affluence on the part of the owner.

The rest of the containers are glass bottles. The majority of these (6 specimens) are colourless medicine vials of three types: round sectioned (4 specimens), square sectioned (1 specimen) and fiddle shaped (Turlington's Balsom of Life; 1 specimen). Next in frequency (2 specimens) are large olive green bottles with cylindrical and square-sectioned bodies. These may have held some of the high or double brandy and rum which were consumed in some quantity by the post's inhabitants (HBCA, B.39/a/2, fol. 65, 70; B.39/a/5b, fol. 63, 76-78, 82, 94). The remaining bottle, a yellowish green specimen, is too fragmentary for its form and probable contents to be determined.

Seven objects are classified as pocket tools. All of these are pocketknives, five of which are relatively intact. Four of the latter have a single blade and wooden handles, while the remaining specimen is brass handled and may have had two blades.

Toiletries include a bone comb and the remains of at least three mirrors. The former item may be one of the "ivory" combs listed in the Nottingham House trade lists (HBCA, B.39/a/2, fol. 65; B.39/a/5b, fol. 77). Also listed are horn combs, both "large" and "dressing" (HBCA, B.39/a/2, fol. 65; B.39/a/5b, fol. 76-77).

The recovered mirrors are either rectangular or rectangular/round (one curved and three straight sides). As the latter is not a common shape, it was probably formed by altering a rectangular mirror. The mirrors or looking glasses offered at the post are of two types: "black book" and "oval gilt" (HBCA, B.39/a/2, fol. 66; B.39/a/5b, fol. 77).

Soap is another toiletry that was supplied at the post. While some of it was imported, an undetermined amount was also made on site (HBCA, B.39/a/2, fol. 68; B.39/a/4, fol. 17; B.39/a/5b, fol. 82).

Reading Material makes up the final class of personal items. The sole constituent is an extremely fragmentary pamphlet or book in the English language. Although some of the words were decipherable, the subject matter could not be determined.

A related item that is mentioned in the journals consists of a "cutting press to bind books." Constructed on site by Peter Fidler, it enabled him to bind "5 Vols. of Reviews & 1 of Almanacks," as well as "a Quarto Manuscript & Quire of paper" (HBCA, B.39/a/2, fol. 39; B.39/a/5b, fol. 10).

The Nottingham House artifact assemblage contains approximately 50 **Household Items** which fall into four classes (Table 27). The most prevalent articles are those associated with **foodways**. Of the 43 objects that compose this class, 40 per cent are concerned with the preparation of food, 35 per cent are associated with its storage, 21 per cent relate to its consumption and 4 per cent are of uncertain

Table 27. Classes of Domestic Items and Their Relative Frequencies (Total No. of Artifacts in Each Category on Which the Minimum Object Count is Based is Shown in Parentheses)

Artifact Category		Minimum Number of Objects Quantity	 Percentage
Foodways	(213)	43	86
Furnishings	(3)	3	6
Sewing	(3)	3	6
Miscellaneous	(6)	1	2
Total	(225)	50	100

affiliation. The objects that make up the first group include at least six yellow metal cooking kettles, three kettle covers (one copper and two tinned iron), four fire steels, three butcher (kitchen) knives and a kettle hook. Two of the kettles are relatively intact and have flat bottoms, everted sides, rolled, reinforced rims and folded sheet metal lugs. One of them is a seven-litre (1.84 U.S. gal.) vessel, while the other - a bottomless specimen - had a capacity of at least 14 litres (3.7 U.S. gal.). The other kettles are postulated on the basis of the recovered fragments:

1) Four rolled rims, 15 scored wall fragments and one folded sheet metal lug with attached rim are from one or more brass kettles of the same type as the two relatively intact specimens. The size of the lug (46.6 by 37.5 mm) suggests that the vessel it was a part of was not as large as the 7-litre kettle.

2) Another kettle, possibly a smaller version of the above specimen, is represented by a folded sheet brass lug 26.5 by 23.8 mm. A comparison with the lugs on the brass kettles in the National Historic Parks and Sites Branch collection suggests that the recovered specimen was probably attached to a kettle with a capacity of less than 0.4 litres (2/5 qt).

3) One or more untinned copper kettles of tabbed seam construction with rolled rims and flat bottoms are represented by 3 rims, 1 complete bottom, and 11 miscellaneous fragments. The bottom reveals that the vessels it came from had a basal interior diameter of about 176 mm.

4) The presence of a tinned copper kettle of unknown size and shape is indicated by 23 non-specific body fragments, three of which exhibit tabbed seam remnants.

The other fragments (a rim reinforcing rod, two rivets, three brass body fragments and a brass bottom) are attributable to two or more of the aforementioned kettles. It is, therefore, impossible to ascribe them to any one specific vessel.

The presence of the shallow, dish-shaped kettle cover fragments intimates that cylindrical bodied kettles with circular lugs attached below their folded rims (such as those illustrated and described by Woolworth and Birk [1975: 63-64]) may have been in use at the site. The dish-shaped covers could not be properly placed on the rolled rim kettles because of the placement of the lugs on the latter.

An examination of the recovered material reveals that the brass kettles were produced by "raising," while the copper ones were made using tabbed seam construction. In the former process, the entire body of the kettle was hammered out from a single, circular piece of metal. The bottom of the vessel was left flat while the extended sides were wrinkled, thus raising them and reducing the diameter. The wrinkles were then removed with a hammer on a stake. The previous steps had to be repeated on occasion to bring the sides into the desired position. When the proper shape had been achieved, the surface was planished to eliminate the hammer marks (Kauffman 1968: 44). The archaeological evidence suggests that the kettles were then inspected using a gauging device to see that they conformed in size and shape to a set standard. After any flaws or irregularities had been eliminated, at least some of the vessels appear to have been annealed or otherwise heat treated. They were then apparently final checked with the gauging device.

In tabbed seam construction, two or three pieces of precut sheet metal (one or two wall components and a bottom) were joined together to form the body of the kettle. To make the joint, short slits were cut into one of the two edges to be joined thereby forming tabs, every other one of which was bent outward. The uncut edge was then inserted into the joint so that half the tabs were on one side and half were on the other. After the tabs were flattened and the joint had been brazed, the double thickness of metal at the joints was reduced to a single thickness by hammering. After planishing, the interiors of the vessels were tinned to render them corrosion resistant (Kauffman 1968: 41-47).

The two fairly intact kettles were recovered from pit C and the sub-floor storage pit in Room C of the main house, respectively. As for the fragments, 54 per cent of them were encountered in pits A-B. A secondary concentration (20% of the fragments) was found in the shallow pit in Room D of the main house. This pit also contained 18 yellow metal tinkling cones, and it may be that some of the kettle fragments represent waste from tinkling cone manufacture. Almost 84 per cent of all the kettle fragments have at least one cut edge, indicating that kettles, when no longer serviceable, were a common source of yellow sheet metal.

The "copper kettles" that are recorded as having been in use or traded at the fort are of sundry sizes: 5 gal. (cooking stores), 4 1/2 gal., 3 1/2 gal. (cooking stores), 2 1/2 gal., 1 1/2 gal., 1 gal., 1/2 gal., 2 pt and 1/2 pt. (HBCA, B.39/a/2, fol. 67, 69; B.39/a/5b, fol. 78, 81).

The fire steels are of two types: those with projecting handles, and those with an oval form. They were apparently used in conjunction with gunflints, a practice that seems to have been fairly common on the frontier. To start a fire, the edge of the steel was struck repeatedly with a flint, causing sparks to fall on some tinder. When the latter began to smoulder, it was blown upon to ignite some kindling or, if available, a sulphur match. Although simple, the process was fairly time consuming, there being very few who could "strike-a-light" in less than three minutes (O'Dea 1964). It was also bloody on occasion; as an 1832 publication points out: "On a cold, dark frosty morning when the hands are chapped, frozen and insensible, you may chance to strike the flint against your knuckles for some considerable time without discovering your mistake" (O'Dea 1964).

The butcher or kitchen knives have tapered blades with straight to slightly concave backs, concave cutting edges and blunt points. The evidence suggests that they had softwood handles. Although primarily suited for general kitchen use, knives of this type probably served as multi-purpose tools in the wilderness.

The remaining article, the kettle hook, is fairly crude and was probably "country made." Other culinary items in use or being traded at Nottingham House include japanned pots of 1 qt (cooking stores), 1 pt (in stores and for trade) and 1/4 pt (for trade) capacity; a tea kettle (in stores); tin pans (for trade); and a frying pan (cooking stores) (HBCA, B.39/a/1, fol. 12; B.39/a/2, fol. 69; B.39/a/5b, fol. 79).

Artifacts concerned with the storage of foodstuffs include several wooden cask components, 43 iron hoop fragments and a tin plate funnel remnant. The wooden components appear to be from a cask whose ends were approximately 185 mm (7.3 in.) in diameter and whose staves were about 548 mm (21.6 in.) long. No metal hoops were found in association with the remains, intimating that the cask was either hooped with withes or that the pieces represent a dismantled specimen.

The hoop fragments represent a minimum of 14 hoops. In that most casks have between four and eight hoops, the indication is that at least two and possibly as many as four vessels are involved. Many of the fragments have cut ends, revealing that the hoops of surplus casks were a common source of strap metal. It may even be that the hoops of large casks were cut down and used to hoop the "small keggs" which were produced at the post (HBCA, B.39/a/4, fol. 16). Iron rivets for making such hoops were included in the cooper's stores (HBCA, B.39/a/2, fol. 69; B.39/a/5b, fol. 82).

Casks, popularly known as barrels, kegs, hogsheads, etc., were commonly used to transport and store biscuits, butter, flour, liquor, molasses, salted meat (moose) and fowl (geese and ducks), vinegar, water and gun powder (Hanson 1968: 9; HBCA, B.39/a/5b, fol. 38; Ross 1976: 982-83). Brass cocks and the funnel were used to transfer liquids from the casks to smaller containers (HBCA, B.39/a/2, fol. 69; B.39/a/5b, fol. 81).

The items associated with the consumption of subsistence commodities consist of three table knives, two pearlware saucers, and four pieces of colourless lead glass tableware. The knives are of two types. The first has distinctive, brass openwork handle scales inlaid with what seems to be horn or tortoise shell. The tapered blade has a broadly convex back and edge, and a spear point. The second type has wooden handle scales, and a bolstered blade with a slightly concave back and slightly convex edge.

The pearlware saucers, both of which are about 180 mm in diameter, are decorated with an underglaze blue transfer print of the willow pattern. Their size, typical of a time when people frequently drank from saucers, indicates that they were part of an English "breakfast cup" and saucer set (R. Whate 1978: pers. com.). This implies an upper class owner who was quite up to date for the 1802-1806 period, most likely Peter Fidler himself (R. Whate 1978: pers. com.).

The glass tableware consists of a stemmed drinking glass which, based on on its provenience, may also have belonged to Fidler, and three unidentified objects. Two of the latter are decorated with cut and engraved designs, respectively. The third is plain.

Other articles that may be added to the list are forks, spoons (iron and tin), tin plates and vitry for table cloths (HBCA, B.39/a/2, fol. 68-69; B.39/a/5b, fol. 79, 81-82). Of the foregoing, all but the iron spoons (which are listed as trade items) appear on the post's lists of "stores on hand" for the 1802-1803 and 1803-1804 seasons, suggesting that at least some of the servants were provided with eating utensils by the company.

The fourth and last group of food related items - those of uncertain affiliation - is composed of the fragmentary blades of two kitchen or table knives.

The second class of domestic items consists of household furnishings. These are represented by a brass lock and two copper hinges which are of a size commonly used on small chests and boxes. Other furnishings known to have been at the post are tables, chairs, benches, cupboards (some with locks), shelves, and beds, all of which were "country made" (HBCA, B.39/a/1, fol. 9, 11-14; B.39/a/2, fol. 69; B.39/a/3, fol. 9, 19). The beds were probably in the form of bunks with rough board bottoms (Ross 1976: 634). While most of them had grass-filled mattresses, Flider slept in a feather bed after the first season (HBCA, B.39/a/1, fol. 12; B.39/a/5b, fol. 9). The "typical" wilderness feather bed mattress seems to have consisted of a large, rough canvas bag filled with about 30 lb of feathers (HBCA, B.39/a/2, fol. 2).

Furnishings traded to the Indians and sold to the Company's employees alike include large green striped blankets, as well as those of 1 1/2, 2, 2 1/2, 3, and 3 1/2 points (HBCA, B.39/a/2, fol. 65; B.39/a/5b, fol. 76). While these articles were primarily used as bedding by the post's inhabitants, the Indians were fond of wearing them as robes, especially during the colder months.

Sewing articles constitute the third class of household goods. These include two tailor's thimbles and a specialized type of needle whose exact function remains undetermined. The types of needles that were being traded at the site are brown thread, darning and glovers (HBCA, B.39/a/2, fol. 67; B.39/a/5b, fol. 78-79). Other sewing items that were available are scissors and thread (blue, green, red, and "all colours") (HBCA, B.39/a/2, fol. 68, B.39/a/5b, fol. 79-80).

The fourth and final group of domestic items comprises six miscellaneous artifacts. The first of these is a thermometer tube which doubtless represents one of the Fahrenheit thermometers that was hung up by Peter Fidler "for an account of it and the weather" (HBCA, B.39/a/1, fol. 8). These instruments were of both the spirit and mercury variety. The latter were made in Montreal by F. Donagamy, an Italian, and had a scale that ranged from 212 to -70 degrees (HBCA, B.39/a/5b, fol. 13).

Two of the other items are tinned sheet iron handles which are of a type noted on such articles as cups, small pitchers and candle moulds. The latter, with a three-unit capacity, are recorded as having been used at the post to make tallow candles for domestic consumption (HBCA, B.39/a/3, fol. 9).

The fourth artifact is a tinned sheet iron lug attached to some sheet iron object.

The two final items are small lumps of red ochre. This pigment is listed in the "stores" section of the Nottingham House inventories (HBCA, B.39/a/2, fol. 69; B.39/a/5b, fol. 81), intimating that it was intended for domestic use, rather than for trade with the Indians.

Another object that may be added to the miscellaneous group is a lantern that was provided by the local XY Company (HBCA, B.39/a/5b, fol. 13).

Of the 1767 artifacts that make up the Subsistence and Defence category, 99.5 per cent relate to hunting and defence; the rest (seven barbed hooks and one possible line weight) are associated with fishing. While the importance of hunting in the subsistence economy of the post is seemingly corroborated by these figures, the historically documented reliance on fish as a mainstay of the diet is not. This discrepancy is due primarily to the skewing effect of the 1688 lead shot. Secondarily, most of the fish consumed at the site were caught in gill nets (Krause 1976), items whose size and economic value would preclude them from readily finding their way into the archaeological record. Fishing with hook and line seems to have been a supplemental method performed primarily when not enough fish were taken in the nets (Krause 1976: 17). The ratio of hunting/defence to fishing items is, therefore, consistent with what might be expected at a northern trading post.

Among the artifacts attributed to hunting and defence are three native-made stone projectile points, two of which predate the site by at least 1000 years. The third specimen cannot be dated but may also antedate the post. Thus, there is no archaeological evidence for the use of stone-tipped projectiles by the indigenous population in the early 19th-century.

The remainder of the hunting/defence material is related to firearms and consists of 13 gun parts, 1705 pieces of ammunition (lead balls and shot) and 39 shooting accessories (gun worms and flints). Eight of the gun parts (the gun screw, butt plate, multi-ribbed ramrod thimbles, barrel fragment and tangs), the bulk of the ammunition and the wire gun worms are attributable to the typical trade gun of the period, the so-called "Northwest gun." This full stock, smoothbore fusil was cheaply constructed and light in weight. It had an octagonal/round barrel 3 - 4 ft long which was commonly 16 gauge or about .66 cal., although pieces ranging from .56 to .69 cal. have been encountered. The barrel was attached to the stock with round pins passing through round-holed barrel lugs, as well as a single tang screw. As the fusil lacked a trigger plate, the tang screw passed upward through the front part of the trigger guard and into the square-ended tang which had a threaded screw hole. The trigger guard, usually of iron, had a bow large enough to permit access to the trigger even when the trigger finger was in a mitten or glove. The thin trigger had a rearward curl at the end of the pull. The lock, equipped with a goose neck cock and an unbridled pan, was secured to the stock with three screws. Directly opposite the lock was the distinctive, cast brass serpent side plate. A flat, cast brass butt plate with a short tang was affixed to the butt with seven small square nails: six in the butt and one in the tang. The gun came with a brass-tipped, wooden ramrod held in place by two (usually) to three ribbed thimbles fashioned from sheet brass (Hanson 1955: 36-41; HBCA, B.39/a/5b, fol. 77; Russell 1957: 104-27).

The other gun parts are not typical trade gun components. While some of them may have come from "chief's grade fusils" (cheap full stock sporters with eye-catching decoration; Hanson 1955: 41) or French "trade" guns, the majority probably represent personal firearms which may have included muskets and fowlers, as well as pistols and rifles. The presence of the two latter types of small arms is implied by the possible pistol trigger, the socketed gun worm and the two smallest (.445 and .451 cal.) lead balls.

The gunflints that made the firearms functional are of two types (blade and spall), both of which are about equal in size. Based on English specifications of 1819 (Rees 1819: Vol. 14, "Flint"), six of the 26 measurable specimens are of "pistol" (military) size (ideally slightly more than 1.0 in. long by 0.75 in. wide, or about 27.0 by 19.1 mm with an extrapolated range of 24.6 - 29.3 mm by 16.0 - 22.2 mm), and 20 are of "carabine" size (ideally 1.25 in. long by 1.0 in. wide, or 31.8 mm by 25.4 mm with an extrapolated range of 29.4 - 36.6 mm by 22.3 - 28.6 mm). However, in that these are apparently military size designations, it is very likely that in a trading post context the "carabine" flints (Fig. 76a-d, i-n) were used with smoothbore trade muskets or fowling pieces, while the "pistol" flints (Fig. 76e-g) were intended for large pistols or trade guns.

It appears that both flint types were also occasionally used with fire steels. Five specimens with severely battered or notched perimeters fall into this category. All but one of them were found in Room D of the main house, the presumed men's quarters. Similar flints have been noted at several other sites, among them Fort George (Kidd 1970: 75), Fort Wedderburn II (personal observation) and Fort Michilimackinac (Stone 1974: 247).

Subsistence and defence items not represented in the Nottingham House collection but known to have been at the site on the basis of historical documentaton (HBCA, B.39/a/2, fol. 65, 69; B.39/a/3, fol. 19; B.39/a/5b, fol. 76, 78, 81; Krause 1976: 11, 17) include, by category: (a) hunting and defence - bayonets (flat; large and small), cartridge paper, gun powder, and powder horns; (b) fishing - gills nets (one of them is recorded as being 60 fathoms long), net lines, houseline twine, fine and coarse twine and ice chisels (narrow and broad); and (c) horticulture - a plow, a garden spade and garden seeds.

The site produced 27 intact and fragmentary **Tools**, as well as 90 whole **Hardware** items and 204 hardware fragments. Regarding the tools, 16 are composed of ferrous metal and probably originated in Europe. The rest, made of bone (3 specimens) and stone (8 specimens), are of native manufacture. Six of the non-metallic implements came from strata in the main house (flake knife and bone fleshers), northern North West Company structure (bone awl and side/end scraper), and the storehouse (broken biface) that suggest contemporaneity with the post. The rest, none of which have temporally diagnostic forms, may or may not be coetaneous with Nottingham House.

The majority of the tools are of types that would have found their primary use in the preparation and sewing of leather. These include the straight and offset bi-pointed awls, and all but two of the stone and bone implements. The two exceptions - the scoria abraders - could have been used to scrape, grind, or smooth any of a number of different materials. The remaining items were intended for use on wood (the axe, plane iron, brad awl, gimlet, and homemade canoe knife) and metal (the three files).

Other tools that were being traded or used at the post include augers of 1.0, 1.5 and 2.0 in.; an adze; chalk line; chisels "of sorts;" two pairs of compasses; files (cross cut, hand and pit saw); a goose (for the tailor); a claw hammer; oval and "falling" hatchets; a drawing knife; picks; pincers; planes (jack and smoothing); saws (cross cut, hand, pit and turning); scrapers; a snow shovel for clearing the roofs; a tap borer; and hand and table vises (HBCA, B.39/a/1, fol. 18; B.39/a/2, fol. 66, 69; B.39/a/5b, fol. 78-79, 81).

Related items include a ladder and a saw box (HBCA, B.39/a/3, fol. 19). Salaman (1975: 441-42) describes the latter as a square box about 20 in. high which a carpenter used in the workshop as a chair for his tea and as a horse for sawing.

The hardware consists primarily of wrought-iron nails which exhibit five different head forms: rose, rose-T, clasp, L-head and flat. Of the 194 specimens, all but 26 have been bent, clinched, twisted, battered or broken through use. Two of the used specimens were found in situ in structural components. These nails have rose heads, blunt points, and are 67 and 72 mm long. They were used to hold floorboards in place. The remaining nails were not associated with any identifiable wooden components. It is, therefore, impossible to do more than speculate about their probable uses. The shortest specimen, a 15-mm long rose head nail, probably served as a tack. The nails 25 mm to about 40 mm long are considered shingling and lathe nails (Peter J. Priess 1977: pers. com.). However, as there is no evidence for either shingles or lathe at the site, it is much more likely that the nails were used in the construction of furniture, or such items as chests and boxes (Peter J. Priess 1977: pers. com.). The longer nails were probably used for general construction purposes. Concerning head form, clasp nails were primarily used in the construction of doors, windows and floors; T-heads served as finishing nails; and rose heads were general purpose nails (Peter J. Priess 1977: pers. com.). However, as nails were at a premium in the wilderness, it is by no means certain that the recovered nails were used for the purposes enumerated above.

An attempt was made to determine size categories within the intact nail group on the basis of length frequencies (Fig. 99). Unfortunately, the sample was too small to reveal any specific pattern. It can only be said that there are primary peaks at 31 mm/32 mm (1 1/4 in.) and 67 mm (2 5/8 in.), and secondary peaks at 34 mm (1 5/16 in.), 43 mm/44 mm (1 11/16 - 1 3/4 in.), 62 mm (2 7/16 in.), 65 mm (2 9/16 in.) and 73 mm (2 7/8 in.).

Four rose head, two rose-T and 19 clasp nails have slight concavities on one (4 specimens) or both (21 specimens) wide sides of the shanks directly under the heads. These depressions were produced before the heading process when the ends of the shanks were peined to facilitate the formation of their heads. Considering the relative frequencies of the nails that were so treated, it is apparent that while such peining was not standard practice in the production of rose head and rose-T nails, it was in the manufacture of clasp nails.

In addition, nine rose head, two rose-T, seven clasp and three indeterminate-class nails exhibit slight but distinct angular shoulders on one (14 specimens) or two (7 specimens) sides of the shanks immediately below the heads (Fig. 85). Of the specimens that have two shoulders, six have them on opposite sides of the shanks, while one has them on contiguous sides. The shoulders are of differential heights in four cases and of equal heights in three. They were produced when the shanks were forged and merely delineate the portion of the nail stock that was not modified by hammering (personal observation). Their presence on a number of the recovered nails indicates that during manufacture, a short section of the unaltered rod was occasionally left attached to the end of the shaped stock, apparently to provide a little extra metal for forming the head, as well as to prevent the nail stock from falling through the heading tool during the heading process.

The next most common item of hardware is window glass. Represented by 59 fragments, this material has a pale yellowish green (7.5GY) to bluish green (10BG) colour, and a bimodal thickness of 1.8 and 2.4 mm. Unfortunately, no information concerning pane size could be obtained.

The only other piece of building hardware consists of the thumb latch lift bar found in the northern North West Company structure. The absence of other door hardware such as locks (pad, "cabbin door" and stock), hinges, hasps and staples, all of which are recorded as having been in use at the site (HBCA, B.39/a/2, fol. 69; B.39/a/5b, fol. 81-82) suggests that such items were stripped from the buildings when the post was abandoned.

The rest of the hardware consists of 36 pieces of multi-purpose iron and brass wire, and two ferrous metal rings which apparently functioned as ferrules.

Objects relating to the **Business** aspect of the post are notably scarce, only three having been recovered: a lead seal, a slate pencil, and a penknife. However, there are several non-archaeological artifacts that can be added to this list, namely, the post journals (HBCA, B.39/a/1-5b). These valuable accounts of daily life and trade at the fort were kept in the "marble covered" books inventoried in the Nottingham House lists of stores on hand for 1802-1803 and 1803-1804 (HBCA, B.39/a/2, fol. 69; B.39/a/5b, fol. 81). Other business-related items that appear in these lists or in the journal entries include common writing paper, demy paper, blotting paper, ink powder, black lead pencils, sealing wax, steel wolf traps, steelyards of 120 and 260 lb, and house and Indian flags (HBCA, B.39/a/1, fol. 15; B.39/a/2, fol. 69; B.39/a/5b, fol. 81-82). While most of the preceding items are self-obvious, the last two may require some explanation. The house flag, which flew over the fort each day, had a red field with the Union Jack in the upper inner corner and the letters HBC in the lower outer corner. The appearance and function of the Indian flag is not known. Although neither listed in the journals nor present in the archaeological collection, the presence of quill pens and at least one slate tablet at the post can be inferred on the basis of the penknife and slate pencil, respectively.

Transportation is represented by a single item: a globular brass bell. Although brass bells were frequently used for personal adornment, the one in the collection is seemingly too heavy to have served in such a manner. It is, therefore, probable that it was otherwise employed, most likely being attached to a sledge dog harness, a common practice intended to "cheer the flagging spirits of men and animals through the long run of the winter's day" (Hargrave 1871: 155).

Albeit none were recovered from the site, several contrivances that served to transport people, provisions and goods are mentioned in the Nottingham House journals. The most important of these is the birchbark canoe, the principal means of conveyance in the Northwest. Although descriptions of the canoes utilized by the Hudson's Bay Company in Athabasca during the early 19th century are lacking, it is known that they were of two sizes: small and large (HBCA, B.39/a/4, fol. 7). The smaller variety was probably similar to the local Indian canoe, while the larger one was doubtless the famous canot du nord. The former was generally 18 ft long and 1.5 ft deep with a 2.0-ft beam (Williams 1969: 189). It could only accommodate a crew of two or, at the most, three men and a cargo of about 200 - 350 lb (Rich 1951: lxiii). The canot du nord or "north canoe" measured 24 - 27 ft long, 4 - 5 ft across the beam and 21 - 24 in. deep. It had a capacity of 3000 - 4000 lb, and a crew of from four to eight (Rich 1938: 9n.; 1951: lxiii; Ross 1970: 60). Weighing close to 300 lb, the vessel could, nonetheless, be portaged by only two men (Morse 1968: 6; Rich 1951: lxiii). The canoes were equipped with paddles, poles, repair kits, tracking lines for hauling the boats up the less violent rapids, oilcloths for covering the cargo and for improvising sails and sponges of 2 - 4-qt capacity for bailing purposes (HBCA, B.39/a/1, fol. 23; B.39/a/2, fol. 69; Nute 1955: 26-27).

After the waterways froze over, sledges became the principal vehicle. These appear to have been of two types, the more common form being the "flat sledge" which was used to haul fish to the post from the outlying fisheries (Krause 1976). According to Captain John Franklin (1823: 95), these contrivances

> are made of two or three flat boards, curving upwards in front, and fastened together by

> transverse pieces of wood above. They are so thin that, if heavily laden, they bend with the inequalities of the surface over which they pass. The ordinary dog-sledges are eight or ten feet long, and very narrow, but the lading is secured to a lacing round the edges.

Capable of carrying about 250 lb of cargo, the sledges were drawn by three or four dogs "whose neatly fitting harness, though gaudy in appearance, is simple in design and perfectly adapted to its purposes" (Franklin 1823: 84; Hargrave 1871: 155).

The other sledge was bigger and may have had iron shod runners to facilitate its use on ice and frozen ground, surfaces that would have torn a flat sledge to shreds (HBCA, B.39/a/4, fol. 9; Krause 1976: 16, 40).

For personal mobility during the winter months, snowshoes were a necessity. According to Andrew Graham, these were of two sorts: galley and Indian (Williams 1969: 147-48). The former "is made of two light bars of wood, fastened together at their extremities, and projected into curves by transverse bars." The toe is turned up to prevent tripping, and the interior is filled with a fine netting of leather thongs. The shoes, each of which weighs about 2 lb, are 4 - 6 ft long and 1.5 - 1.75 ft broad, being adapted to the size of the wearer (Franklin 1823: 94-95). The Indian snowshoe differs only in that its frame is formed of a single piece of wood bent into a teardrop configuration (Williams 1969: 147).

Sixty-six per cent of the Miscellaneous material apparently originated in Europe and consists of unidentified or problematic fragmentary objects and scraps of ferrous metal, brass, lead and glass. The rest of it, composed of worked bone, stone detritus, birchbark sheets and rolls and pieces of leather and hide, was probably produced on site or elsewhere in British Canada.

With one exception, the bone items were recovered from stratigraphic contexts in the main house and northern North West Company building that suggest concomitance with the post, as well as use by the site's occupants. The exception (the moose metacarpal object) came from a less diagnostic layer and therefore cannot be positively attributed to the 1802-1806 period.

Most of the stone waste, all of which appears to have resulted from the production of tools or cores by members of the autochthonal population, was also found in temporally vague contexts outside the historic buildings. It is therefore impossible to segregate debitage that may relate to the prehistoric component at the site from that which may be associated with the historic occupation. Even the few specimens that were encountered in the main house cannot be definitely attributed to the historical period because of the possibility that they were in the soil placed on the structure's roof which subsequently collapsed into the building.

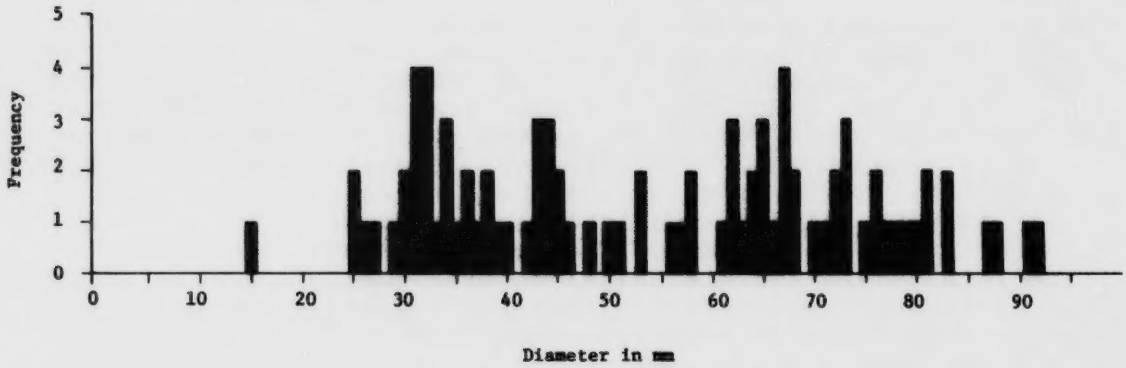

Figure 99. Intact wrought-iron nail population as identified by length frequencies (N = 86). (Drawing by S. Epps.)

The remaining items are attributable to the fort's occupation. The birchbark was probably used in the manufacture or repair of birchbark articles. The leather and hide specimens cannot be interpreted because of their fragmentary nature.

Several items whose functions are problematic also appear in the lists of trade goods and stores on hand. These include brimstone (probably for medicinal purposes or for making matches), cotton balls and "worsted" feathers (HBCA, B.39/a/2, fol. 66, 69; B.39/a/5b, fol. 77, 81).

While a number of the Nottingham House artifacts are probably misplaced or damaged and discarded trade goods, the majority are attibutable to the post's occupants. This is indicated not only by the archaeological evidence (provenience and use/wear), but by the post journals which disclose that the Company's servants were acquiring varying amounts of "trade goods" for their personal use (details concerning all the recorded purchases made during the course of the first three seasons are presented in Appendix D). The account sheets (HBCA, B.39/a/2, fol. 65-68; B.39/a/5b, fol. 63, 76-79, 94) reveal that habiliments, clothing accessories and bulk cloth made up the most variegated group. Of the ready-made garments, shirts, especially those of cotton, predominated with trousers next in line. Handkerchiefs were the most common accessory. As for textiles, plain blue cloth was by far the most popular, followed by gartering and flannel. Although some of the men also purchased needles and may have sewn some of their own clothing, most seem to have had it prepared for them by the post's tailor (HBCA, B.39/a/1, fol. 22; B.39/a/3, fol. 6a, 7, 9, 19).

Other commodities that were consumed in substantial quantities included tobacco (primarily "roll" with lesser quantites of "Spencers twist" and "cutt"), sugar (in order of popularity: moist, brown and loaf) and high brandy. Blankets, notably "large" ones, were also fairly popular items. Of lesser popularity were - in descending order of frequency - horn and ivory combs, skeins of twine, soap, knives of sorts and looking glasses. One-of-a-kind merchandise included a burning glass, a tin pan, a copper kettle of 1 1/2 gal., a pound of salt and, quite unexpectedly, a quire of plain writing paper (HBCA, B.39/a/2, fol. 65-68; B.39/a/5b, fol. 63, 76-79, 94).

Insight into the subsistence economy of the post's inhabitants is provided by the recovered faunal remains supplemented by the historical record. As this is the subject of an in-depth study by Anne M. Rick (Appendix B), only a general overview will be presented here.

The faunal material represents at least 42 different species including 19 birds, 14 mammals, 7 fish and 2 molluscs. Of the birds, 15 species are esculent, while the rest are generally considered scavengers or nuisance birds and were probably not eaten. Even if they had been, the crow, herring gull, hawk and two ravens that constitute the latter group would have contributed less than 4 kg of usable meat to the larder. The dominant edible fowl is the goose both in terms of minimum number of individuals and usable meat, there being 41 individuals providing an estimated 100.83 kg (73.3%) of the total usable bird meat. Next in terms of usable meat were swans (20.67 kg; 15.0%), followed by ducks (10.65 kg; 7.7%), cranes (3.18 kg; 2.3%) and grouse-ptarmigan (2.23 kg; 1.6%).

Seven of the recorded mammals were definitely consumed on site as indicated by journal entries and/or butchering marks on their bones. In descending order of usable meat, the species include moose (1089.6 kg), bison (227.0 kg), caribou (137.5 kg), dog/wolf (22.5 kg), beaver (22.2 kg), snowshoe hare (15.4 kg) and dog (9.0 kg). Fur bearers that may or may not have been eaten are the red and Arctic fox, muskrat, marten, wolverine, and lynx. Had they been regarded as palatable fare, these species would have provided a combined total of 33.7 kg of usable meat. The two remaining species, a deer mouse and a vole, are classified as pests.

Unlike the birds and mammals, all of the fish species are considered to be edible. Pike, whitefish, and walleye were the most numerous and provided almost 85 per cent of the total usable fish meat. Lake trout (10.2%), burbot (3.0%), goldeye (1.2%) and sucker (0.8%) contributed the rest.

Molluscs are represented by three fresh-water clams: two fat muckets and an Anodonta. Two of the individuals came from contexts (pit D, and the large pit in Room D of the main house) that suggest their use as food. The third specimen, a mucket, was found in the surface layer in Room D and may have been deposited by a natural predator. The scarcity of the shellfish intimates that they were not a common item of fare.

Based on the minimal usable meat calculations derived from the archaeological material, mammals provided 84.5 per cent of the total meat supply whereas fish and birds supplied only 7.9 per cent and 7.6 per cent, respectively. This is at variance with the historical record which stresses fish as the main source of dietary protein. The high mammal percentage may be due in part to the fact that the amount of usable meat calculated for the three large mammals (moose, bison and caribou) is based on the assumption that whole carcasses were brought to the site and not just parts thereof as is frequently mentioned in the post journals (HBCA, B.39/a/1, fol. 11, 19, 21; B.39/a /4, fol. 15; B.39/a/5a, fol. 6, 8). Nevertheless, even if the quantity of usable large mammal meat is reduced by up to 85 per cent to compensate for this, the total amount of usable mammal meat still outweighs that of both the fish and birds combined. This suggests that the discrepancy in the fish to mammal ratio is due more to an under-representation of the fish rather than an overestimation of the usable mammal meat on the part of the zooarchaeologist.

There are several possible explanations for the relative scarcity of fish at the site. The first of these is that the smaller and much more fragile fish bones did not preserve as well as the mammal bones. A second possibility is that the fish remains were fed to the dogs kept at the post, especially during times of near-famine. Finally, large numbers of the fish caught during the winter were dried to serve as provisions during tha annual spring voyage to Cumberland House (in 1803, 160 lb of dried fish were allotted to each of the three canoes; HBCA, B.39/a/1, fol. 25). Consequently, the bones of these fish would not have been deposited at the site.

While all of the fish were caught by the Company's servants, the bulk of the bird and mammal meat was apparently obtained from the Indians. The degree of reliance on the indigenous population for supplies of meat and other foodstuffs is revealed by the account sheets in Fidler's journals (HBCA, B.39/a/2, fol. 65-68) which show that during the 1802-1803 season "provisions correspondence" (goods given in exchange for provisions) amounted to 270 1/2 Made Beaver as compared to only 210 13/16 Made Beaver in goods traded. In addition to meat, the Indians provided fat and roots (HBCA, B.39/a/1, fol. 11; B.39/a/3, fol. 15; B.39/a/4, fol. 19). Some meat in the form of bacon was also brought in from Cumberland House, and the rival North West Company provided moose meat on at least two occasions (HBCA, B.39/a/2, fol. 70; B.39/a/5a, fol. 6; B.39/a/5b, fol. 82).

The high protein diet of the post's occupants was supplemented to some degree by locally grown potatoes and turnips. Although the annual yield of these vegetables was quite small, they must certainly have been a welcome addition to the menu. Fidler once also sowed some cabbage but this crop seems to have failed (HBCA, B.39/a/2, fol. 47). Other foodstuffs such as condiments, spirits and dried fruit were brought in from Cumberland House every fall when the brigade returned to Athabasca (Table 28).

Table 28. List of Provisions for 1802-1803 and 1803-1804 (HBCA, B.39/a/2, fol. 70; B.39/a/5b, fol. 82)

Provisions		1802-1803	1803-1804
Bacon	lbs.	28	-
Barley	gal.	8	8
Butter	lbs.	46	24
Buiscuit (sic)		74	8
Cheese		44	6
Coffee		3	2-1/2
Chocolate		4	5
Flour		150	150
Ginger		1-1/2	-
Molasses		57	-
Mustard		3	3
Oatmeal	gal.	16	8
Pepper	lbs.	2	2-1/2
Pimento		1-1/2	-
Prunes		16	-
Raisons (sic)		60	-
Rum	gal.	8	8
Salt		3	2
Sugar brown	lbs.	121	141-1/2
loaf		31-1/2	35-1/2
green		-	2
Tea Souchong		4	2
Vinegar	qts.	6	6
Wine	gal.	-	-

Native plants that may have been utilized by the inhabitants include the dogwood (*Cornus stolonifera*), goosefoot (*Chenopodium* sp.), Saskatoon-berry, strawberry, raspberry and rose. Represented by a single seed found in the main house, the first mentioned is a shrub with several useful components. Not only are the berries edible, but the roots, bark and cambium possess medicinal qualities (R. Fecteau 1976: pers. com). The cambium, when combined with tobacco and sumac leaves in a mixture called "kinnickinnick," was also smoked by several eastern tribes (R. Fecteau 1976: pers. com.). As for the goosefoot, several seeds of which were uncovered in pit A, the leaves of young plants were often used as greens (Moss 1959: 203). The remaining plants, each of which has comestible components, appear in the area today but were not encountered in an archaeological context. Consequently, their inclusion in the diet of the local population can only be conjectured.

Aside from Peter Fidler's journals and some related documents, the archaeological material described in this report is all that remains to mark the Hudson's Bay Company's initial entrance into the fur-rich Athabasca region. While not overly abundant, the material is sufficiently varied to provide a general overview of the post's material culture and subsistence economy, and when coupled with the historical record affords insight into the daily lives of the inhabitants. Nevertheless, there are still a few large gaps in the archaeological record. For instance, practically nothing is known about the provision posts and fishing stations that were associated with Nottingham House. Information concerning the nearby North West Company and XY Company establishments is also notably lacking. Hopefully, this situation will change as more Athabasca fur trade sites are excavated.

APPENDIX A. IDENTIFICATION AND ANALYSIS OF AN INTRUSIVE BURIAL AT NOTTINGHAM HOUSE

by Jerome S. Cybulski

Introduction

The human burial described in this report was discovered in 1972 during archaeological excavations conducted by Karlis Karklins for the National Historic Parks and Sites Branch of Parks Canada. Karklins' excavations focused on the site of Nottingham House, a Hudson's Bay Company wintering post in operation from 1802 to 1806 at the extreme west end of Lake Athabasca, near Fort Chipewyan, Alberta (58°42' north latitude, 111°08' west longitude). The burial was an unexpected find in an intrusive grave that had been dug through the floor, and collapsed roof and southeastern wall of Room A in the post's main house. Karklins estimated that the interment took place between 1815 and 1855. The remains were excavated with the approval of the local RCMP detachment.

Karklins delivered the carefully packaged bones, designated 8R1M5 in the National Historic Parks and Sites Branch system, to the National Museum of Man on 26 October 1977, and requested information on race, age, sex, stature, abnormalities if any and other vital statistics. My analysis of the skeleton suggests that it is the remains of an Amerindian male about 25-28 years old. However, a very few features of the skeleton, strictly considered, do not rule out a possibility of white admixture. Following are a detailed description of the skeleton and its burial context, and a discussion of its racial identification.

The Skeletal Remains and Grave Context

The skeleton is virtually complete and the bones are generally well preserved. There is a minimal amount of postmortem damage and erosion. Four left ribs are broken postmortem and one of the parts is missing. A few bones of the hands and feet are missing, including two middle and seven distal phalanges and one carpal bone; none of the remaining hand and foot bones show damage which might suggest that the phalanges were lost before death or after death and before burial.

The sternum lacks the xiphoid process and the coccyx consists of but one segment. While all other bones are intact, the body of the left scapula (near and at the vertebral border), the right side of the manubrium and both radii heads show postmortem decay. Three small fragments of ossified thyroid cartilage are present. All parts of the skeleton are rather uniformly stained a dark brown and some bones are spottily and lightly covered by a chalk-like powdery substance.

Photographs and field notes supplied with the remains indicate that the skeleton lay fully extended on its back in a narrow, tightly fitting rectangular grave, 1.6 - 2.0 ft (48.8 - 61.0 cm) deep. The skeleton was covered, parallel to its long axis, by three charred boards. The knees and the ankles were, respectively, together in the anatomical midline. The arms were extended along the sides of the torso, hands on and turned in at the hips, palms down, separated at the midline. The articulated skull lay face up but slightly tilted to the right. In general there was very little disturbance of the bones except for the slight shifting of parts expected after the decay of the soft tissues. The loss of some of the hand and foot bones may have resulted from rodent activity (as suggested by the excavator), although there were no gnawing marks on any of the bones. There were no artifacts that might be construed as the remains of clothing (buttons, etc.), ornamental wear or burial offerings.

Pathology and Anomalies

There are no marks on the skeleton that might indicate or suggest the cause of death. Nor are there obvious pathological changes that might point to significant episodes of disease or trauma. Routine posteroanterior and lateral X-ray views of the cranium and mandible revealed no internal abnormalities. The following external changes were detected in the skeleton.

In the frontal bone to the left of the midline and 25 mm anterior to the coronal suture, there is a small, shallow depression, which measures 8 by 5 mm. The surface within the depression is slightly irregular but the depression, for the most part, is barely perceptible. This may be the scar of a sebaceous scalp cyst which, if infected, was inactive for some time before death.

Slight erosive indications of osteoarthritis are present in the corresponding articular surfaces of each middle cuneiform and third metatarsal, and in the dorsal part of the proximal articular surface of the left first metatarsal. Other, probable indications of degenerative change are individual small, shallow and smooth depressions in the intervertebral surfaces of the bodies of the seventh thoracic through second lumbar vertebrae. These depressions suggest the presence of Schmorl's nodes, or herniations of the intervertebral discs. In this skeleton the slight bone changes might be viewed as indications of incipient intervertebral stress.

Elsewhere in the skeleton there is complete spina bifida (occulta) of the sacrum, a congenital anomaly that likely did not affect the health or mobility of the person. Perhaps the most noticeable anomaly of the skeleton is a near symmetrical, gentle incurving of the distal one-fourth of the tibia shafts. Above this, the shafts are straight. Conceivably, the condition could reflect a calcium deficiency during the growth of the bones. However, there are no changes in other parts of the skeleton to suggest a widespread calcium deficiency. All other bones are quite substantial (as are the tibiae) and well-formed. The tibial incurving could otherwise have resulted from poor postural habits during childhood and adolescence, or the situation could merely be a peculiarity of this person's morphology.

All 32 teeth are intact. They are generally well-formed except for some crowding of the upper and lower incisors. There is slight to moderate occlusal attrition which has exposed small spots of dentin in the premolars, first molars, and lower second molars, and a greater amount of dentin in the anterior teeth. The lower left first premolar was carious. Premortem fractures occurred at the distolingual cusp of the upper left first molar, at the buccolingual cusp of the right first molar, probably at the distal incisive surface of the upper left lateral incisor, and possibly at the medial incisive surface of the right lateral incisor. Most teeth, especially the molars, feature calculus deposits at the base of the crowns.

Sex and Age

Measurements of the skull and long bones, following the techniques of Olivier (1969), are listed in Tables 1 and 2. Frontal and lateral views of the skull and mandible are shown in Figure 1.

The male sex of the skeleton is clearly indicated by its general robustness, all pelvic features, large long bone articular surfaces, and large, rugged skull (cf. Anderson 1969). The age at death of 25 to 28 years was estimated from the following: the pubic bone symphyseal face morphology compares with the McKern and Stewart (1957) criteria for a range of 22 to 28 years and with the Todd (1920) criteria for a range of 25 to 26 years; all long bone epiphyses and other secondary centers of ossification are fused to their respective primary centers; the medial epiphyses of the clavicles are joined to their diaphyses but traces of the juncture lines remain. Development of the hyoid bone and sternum point to an age less than the middle adult years, while the cranial sutures suggest 26 to 29 years when compared with the chart published by Montagu (1960: 609). Ossification of the thyroid cartilages, present in this skeleton, commences at about 25 years of age (Gray 1973: 1123).

Table 1. Measurements (mm) and Indices of the Nottingham House Cranium and Mandible

Maximum glabello-occipital (cranial) length	188
Maximum biparietal (cranial) breadth	146
Basion-bregma height	131
Auricular height	115
Minimum frontal breadth	96
Bizygomatic diameter	144
Basion-nasion distance	100
Basion-prosthion line	103
Upper facial height	76
Total facial height	126
Orbital height, left	35
Orbital breadth, left (to maxillofrontale)	44
Orbital breadth, left (to dacryon)	39
Nasal height	56
Nasal breadth	26
Maxillo-alveolar length	57
Maxillo-alveolar breadth	69
Mandible length	114
Bigonial breadth	109
Bicondylar width	131
Symphyseal height	37
Ramus height, left	41
Minimum ramus breadth, left	74
Cranial module	155.0
Cranial index	77.7
Length/height index	69.7
Breadth/height index	89.7
Transverse cranio-facial index	98.6
Gnathic index	103.0
Upper facial index	52.8
Facial index	87.5
Orbital index (maxillofrontale)	79.5
Orbital index (dacryon)	89.7
Nasal index	46.4
Maxillo-alveolar index	121.0
Weight of skull with teeth (less mandible; in grams)	583.1
Weight of mandible with teeth (in grams)	133.6
Ratio of mandible weight to skull weight	22.9

Table 2. Measurements (mm) and Indices of the Nottingham House Postcranial Skeleton

Measurement	Right	Left
Clavicle length, maximum	163	163
Humerus length, maximum	350	348
Humerus head diameter, maximum	53	52
Humerus head diameter, minimum	49	48
Ulna length, maximum	294	294
Ulna minimum shaft circumference	40	39
Radius length, maximum	272	269
Radius minimum shaft circumference	45	44
Femur length, maximum	494	491
Femur length, oblique	487	487
Femur midshaft diameter, anteroposterior	31	31
Femur midshaft diameter, mediolateral	29	29
Femur subtrochanteric shaft diameter, anteroposterior	29	29
Femur subtrochanteric shaft diameter, mediolateral	39	38
Femur transverse head diameter	54	54
Tibia length, maximum	386	390
Tibia shaft diameter at nutrient foramen, anteroposterior	40	41
Tibia shaft diameter at nutrient foramen, mediolateral	27	26
Fibula length, maximum	378	382
Platymeric index	74.4	73.7
Pilasteric index	106.9	106.9
Cnemic index	67.5	63.4
Ulna index of robustness	13.6	13.3
Radius index of robustness	16.5	16.4
Femur index of robustness	12.3	12.3
Radiohumeral index	77.7	77.3
Tibiofemoral index	78.1	79.4
Humerofemoral index	70.8	70.9
Intermembral index	70.7	70.0
Stature (cm)	176.68±3.18	

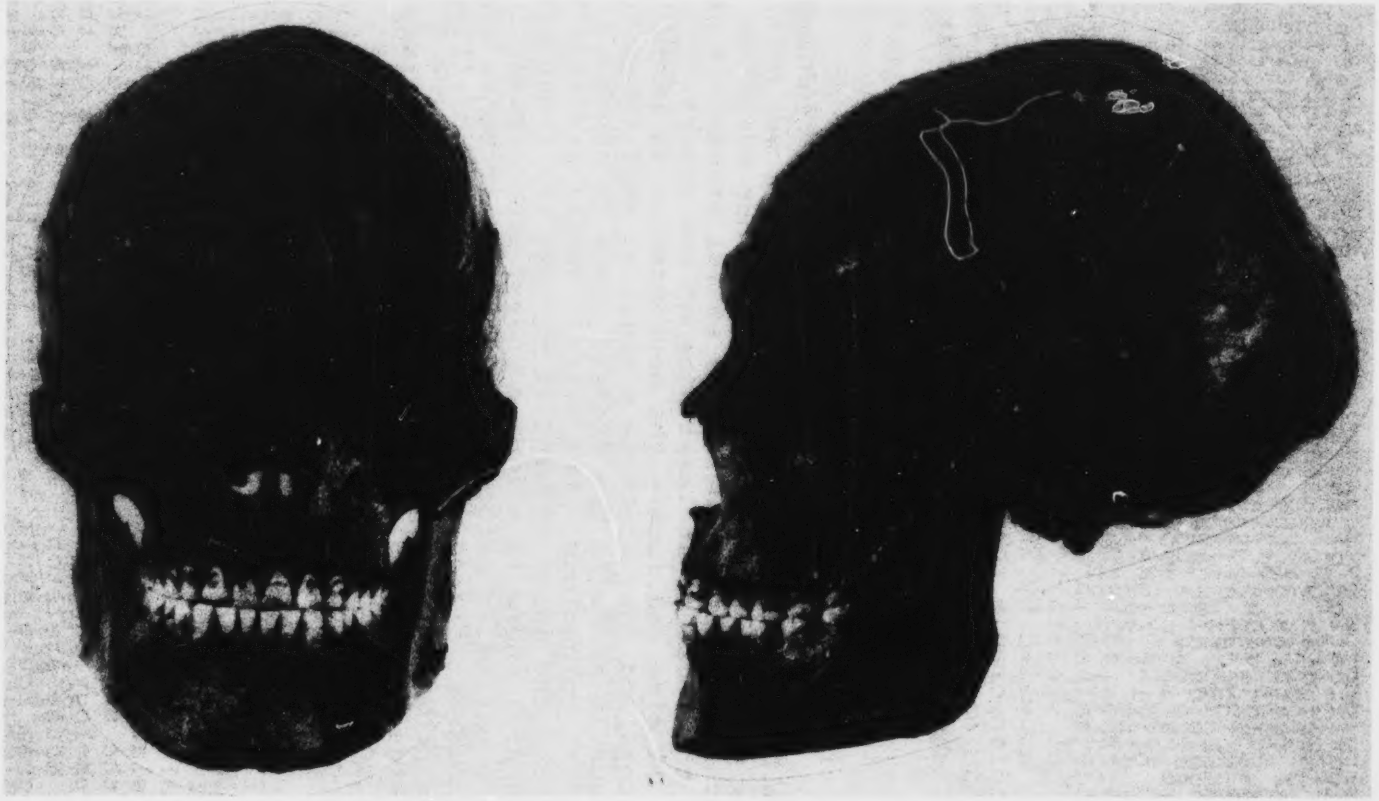

Figure 1. Frontal and lateral views of the Nottingham House skull.

Race, Skeletal Morphology, Stature

The identification of the Nottingham House skeleton as that of an Amerindian was based on a variety of morphological and metrical features of the skull and dentition considered in combination. Individual features were compared with the cranial morphological differences among whites, blacks and Asiatic Mongoloids discussed by Krogman (1962), average craniometric variation among these three groups spottily reported by Olivier (1969), dental characteristics of Amerindians reported by Dahlberg (1951) and Sperber (1972), and knowledge gained through my own analytical experience with archaeological skeletal remains in Canada. Use of the information supplied by Krogman and Olivier is appropriate in that Amerindian crania share certain features in common with Asiatic Mongoloids. Moreover, the morphological and metrical data they discuss help to eliminate the possibility that the Nottingham House skull is basically white or negro.

The following features of the Nottingham House skeleton strongly suggest its Amerindian affinity:

1. **Dentition** - teeth are large and generally well-formed; there is edge-to-edge occlusion; the incisors, though worn, appear to be shovel-shaped; each lower molar has five cusps, each upper molar has at least four cusps and the "Y" cusp configuration predominates; enamel extensions are present on the roots of at least nine of the molars.
2. **Skull size and form** - the neurocranium is large, long and broad and low; there is a sagittal keel (that is, the vault contour is arched); the frontal slope is acute.
3. **Facial morphology** - the overall facial skeleton is high and wide; the nasal opening is narrow; the lower nasal margin is sharp; there is slight subnasal prognathism; the shape of the palate is parabolic; the zygomatic bones are large and somewhat flared, and the inferior zygo-maxillary junction is prominent.

The large facial skeleton and masticatory apparatus is an especially good indicator of the skeleton's Mongoloid-Amerindian affiliation. The transverse cranio-facial index (Table 1), which relates the width of the facial skeleton to the width of the neurocranium, is quite high and exceeds the range of 87 to 92 reported for whites by Olivier (1969). He reports values of 94.5 to 96.5 for Mongoloids and figures as high as 101 for Eskimos who are particulary known for their broad facial skeletons.

The relationship of the weight of the mandible to the weight of the skull (Table 1) further emphasizes the large facial morphology and strong masticatory apparatus of the Nottingham House skeleton. Although comparative data are few, the Nottingham House skull is lighter than the averages reported for whites and negroes (Olivier 1969), while the mandible is notably heavier than averages reported for whites and Asiatics (Krogman 1962).

Some Comparisons with Northern Indians and Eskimos

I was unable to find comparative morphological data on known aboriginal skeletal remains from the immediate or general vicinity of Nottingham House. Indeed, skeletal data on northern Indians from the interior of Canada are rare. Responding to my request, C.F. Merbs, Arizona State University, kindly furnished unpublished craniometric data he had collected on a few northern Indian skeletons as well as a larger number of Eskimo remains. Included were measurements for four Indian and seven to eleven Eskimo male skulls. The Indian skulls came from Griffin Lake (61°17' north, 90°47' west), Fort Good Hope (66°15' north, 128°38' west) and Fort McPherson (67°27' north, 134°53' west) in the Northwest Territories.

Table 3 compares the measurements and indices of the Nottingham House skull with means I calculated from Merbs' data for Indians and Eskimos. The means, rounded to the nearest millimeter, reflect some of the cranial morphological differences that are known to exist between Indians and Eskimos (Oschinsky 1964). The Nottingham House measurements are generally similar to the Indian means, and the comparison serves to further reinforce the skull's identification as Amerindian.

Stature

The postcranial skeleton of the Nottingham House individual is notably robust. This is indicated in part by the long bone head diameters, shaft diameters and robustness indices reported in Table 2. In addition, muscle attachment areas in both upper and lower limb bones are pronounced.

A living stature estimate of 176.68 cm was calculated from the average lengths of the femora and fibulae using the regression equation for Mongoloid males formulated by Trotter and Gleser (1958). It is noteworthy that this estimated value is almost exactly equal to the length of the Nottingham House skeleton in its grave. Karklins measured the skeleton, which lay virtually in anatomical position, "from top of skull to bottom of heel bone" and obtained a figure of 5 ft 8 in. or 176.78 cm. Hence, both values are probably very close indicators of the individual's stature during life.

A Possibility of White Admixture

When studied in combination, morphological and metrical features should determine the race of the skull in 85-90 per cent of cases (Krogman 1962). The vast majority of skull features in the Nottingham House skeleton together with its dental characteristics strongly suggest that the remains are those of an Amerindian. However, the possibility of white admixture cannot be ruled out when strict consideration is

Table 3. Comparison of the Nottingham House Cranial Measurements and Indices with Select Male Eskimo and Indian Sample Means*

Character	Eskimo mean (n=7-11)	Nottingham House	Indian mean (n=4)
Cranial length	183	188	184
Cranial breadth	135	146	147
Basion-bregma height	135	131	132
Auricular height	112	115	114
Min. frontal breadth	93	96	94
Bizygomatic diameter	137	144	145
Total facial height	127	126	122
Upper facial height	74	76	73
Basion-nasion distance	103	100	102
Basion-prosthion line	101	103	104
Nasal height	54	56	53
Nasal breadth	23	26	25
Orbital height	36	35	33
Cranial module	150	155	154
Cranial index	74	78	80
Length-height index	74	70	72
Breadth-height index	100	90	90
Transv. cranio-facial index	101	99	98
Gnathic index	98	103	102
Upper facial index	54	53	50
Facial index	92	88	84
Nasal index	42	46	47

*Means, rounded to nearest millimetre, were calculated from individual data supplied by C.F. Merbs (1978: pers. com.)

given to three features: the depression of the nasal root, the development of the supraorbital ridges and stature. The nasal root is fairly deep and the supraorbital ridges are pronounced as they are typically in whites but not typically in Mongoloids. However, these features may simply reflect Amerindian regional or individual variation (cf. Anderson 1968).

In 1928, Grant (1930) collected anthropometric data on Chipewyan and Cree Indians living in the vicinity of Lake Athabasca. Grant reported frequency data for his Chipewyan male sample in terms of pure-bloods and half-bloods. The mean stature for 44 pure-blood males was given as 166.4 cm, while that for 20 half-blood males was given as 171.1 cm. For the former group, individual statures ranged from 152.5 to 179.5 cm, and for the latter from 155.5 to 179.5 cm. While only 7 per cent of the pure-blood male statures equal or exceed the Nottingham House estimate, 25 per cent of the half-blood statures equal or exceed that estimate. Thus, the Nottingham House individual's stature has a greater probability of fitting into the half-blood than into the pure-blood group. It cannot, however, be entirely excluded from the pure-blood range. Grant's Cree Indian male sample, not broken down into pure-blood and half-blood groups but apparently less mixed with white than the whole Chipewyan sample, ranged in stature from 146.5 to 170.5 cm, with an average of 161.0 cm.

Summary

Based solely on the skeletal data, the remains buried in the intrusive grave at Nottingham House would appear to be that of a 25- to 28-year-old Amerindian male of robust body build and tall stature. Three features do not rule out the possibility of white admixture although they may do no more than portray individual variation. The bones show no indications of the cause of death and no pathological changes that might point to significant episodes of disease or trauma. Thoraco-lumber intervertebral stress is suggested as are slight osteoarthritic manifestations in the feet and a possible sebaceous scalp cyst.

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APPENDIX B. FAUNAL ANALYSIS OF NOTTINGHAM HOUSE

by Anne Meachem Rick

Introduction

Nottingham House, a Hudson's Bay Company wintering post, is situated on English Island at the western end of Lake Athabasca, near the present community of Fort Chipewyan, Alberta. The island itself is a forested outcrop of the Canadian Shield located just 0.43 km from the mainland. This region of lakes, marshes, and boreal forest at the confluence of the Peace, Slave and Athabasca rivers constitutes the Peace-Athabasca delta, one of North America's major wildlife resource areas.

The post was established by Peter Fidler in 1802 to tap the rich trade in Athabasca fur. It lasted but four seasons, being abandoned in 1806 because the Hudson's Bay Company was unable to compete with the North West Company which was already in the area. This single, short occupation was the only major one to occur at this locality. At some later date, probably between 1815 and 1855, a grave was dug into the ruins of the main house, and a number of artifacts indicate occasional use of the area in more recent years.

Depending on the time of year, between 3 and 26 people occupied the post. The most substantial building was the main house which had four rooms and three fireplaces. Two small structures with fireplaces, at the north and south ends of the site, have been identified as North West Company watch houses. Other buildings included a warehouse whose remains were found during excavations, and a fish shed which remains unlocated. Pits were found within the main house and to the south of it.

Excavations at the site were conducted by the National Historic Parks and Sites Branch, Department of Indian and Northern Affairs, in 1972, 1973 and 1977, under the direction of Karlis Karklins. Essentially the whole site was excavated, using trowel and shovel. Dirt screening was carried out only in a few special instances. All bone was saved in 1973 and 1977 although in 1972 some small, unidentifiable pieces were discarded. Bone preservation was good. The occupation layer averaged approximately 0.6 ft in depth and contained much collapsed structural material. Pits contained up to 4.4 ft of fill.

A total of 9359 vertebrate fragments was recovered, 2406 of which were identifiable to at least the family level. There were 3558 fish, 2606 bird, and 2844 mammal bones, making up 38 per cent, 27.8 per cent and 30.4 per cent, respectively, of the total bone sample. Three hundred and fifty-one (3.8%) could not be identified even to vertebrate class and were noted as "class uncertain." Six mollusc fragments were also found. Fish scales occurred in some excavation lots but were not studied for this analysis.

Bones of Doubtful Time Period

According to the archaeological evidence, the bulk of the material found in layer 1 was deposited after the site was abandoned. The layer 1 bone, totalling 127 pieces, is composed in large part of unidentifiable bone fragments but includes specimens identified as pike, walleye, whistling swan, mallard/pintail/gadwall, large goose, hare, dog/wolf, dog, moose, beaver and lynx.

Examination of the bones and their proveniences indicates that at least some of them probably belong to the 1802-1806 occupation. For example, a flesher fragment found in layer 1 of unit 1M crossmends with a portion from the cellar in the same unit, and six lynx vertebrae found in layer 1 of unit 5A may match lynx vertebrae from layer 2 in 1N. On the other hand, duck humeri from layer 1 in excavations 1D, 1H and 3D are bleached whitish and may be from later site activity.

All of these bones could have been excluded from the analysis for stratigraphic reasons. Instead they were included with the rest of the site bone because of the obvious locational discrepancies mentioned above together with the knowlege that stratigraphic boundaries are often ill-defined and that various natural factors sometimes move bones from their original locations. These 127 bones represent only 1.4 per cent of the total site bone and although their inclusion in the report slightly alters various fragment totals, MNIs are not affected.

The fill of the intrusive grave contained only one bone, an unidentified medium-to-large mammal fragment. It, too, has been included with the material from the 1802-1806 occupation.

Methods

The abbreviation MNI is used throughout text and tables for the minimum number of individuals represented by the faunal material using all possible information such as sex, age and size, rather than solely from a numerical count of the most abundant element for each species. All bones from the site are treated as one assemblage for MNI calculations.

All fragments have been counted as separate pieces except where breakage is obviously modern. In such cases pieces were fitted together where possible and have been counted as a single (restored) piece.

Although all of the bones from the main house excavations are listed in the structure 1 column in Table 1, in discussion of the house interior (text and tables), the interior has been more precisely defined as all proveniences in the structure 1 excavations except grave fill and units 1N and 1P (K. Karklins 1974: pers. com.). Only 41 bones were found in these excluded proveniences.

The fauna at the western end of Lake Athabasca was discussed in detail in another zooarchaeological report for the National Historic Parks and Sites Branch which concerned Fort Wedderburn II at nearby Old Fort Point (Rick 1975a). Some points treated fully in that report have not been stressed in this paper, and vice versa. Since general comments about the fauna apply equally well to both sites, a reference to the Old Fort Point report is recommended.

Faunal remains were identified using the comparative skeletal collection of the Zooarchaeological Identification Centre in Ottawa as well as other collections within the National Museum of Natural Sciences.

Fish

Composition of the Fish Remains

Seven kinds of fish were identified from the site, all of which are species that grow to moderate or large size. Of a total of 3558 bone pieces, 844 (23.7%) were identified and represent 97 individuals. The walleye was the most common fish found both in numbers of bones (45.3% of identified fish bone) and in numbers of individuals (MNI - 33, 34.0%). Whitefish and pike were the next most abundant fish (MNI - 28 and 24, respectively). Walleye, whitefish and pike together account for 85 (87.6%) of the individuals recorded and 89.3 per cent of identified bone. All large fish genera occurring in the lake are included in the faunal remains with the exception of the Arctic grayling (*Thymallus arcticus*). This species, although found in rivers entering the delta, may not often occur in the lake itself.

The 2714 unidentified bones (76.3%) consisted mainly of head bone fragments, ribs, fin elements and 1320 vertebrae. Fish scales were also found. Vertebrae were not studied because of time limitations on the project; it was assumed that they would provide little information not available from the many identified head elements. However many of these vertebrae are identifiable.

Fish Species Identification

Two species of the genus *Catostomus*, the white sucker (*C. commersoni*) and the longnose sucker

(*C. catostomus*) occur in Lake Athabasca. Of the four sucker bones found, two can confidently be referred to as longnose sucker. A third is probably from a longnose sucker but the fourth fragment cannot be identified beyond the genus level. Longnose suckers are more common in the north than white suckers and are said to be better-flavored; they can be found in deeper, cooler water than white suckers although both species are often taken together (Scott and Crossman 1973: 534-35, 542). For the sake of convenience, the four bones are treated as a unit in this report.

Both lake whitefish (*Coregonus clupeaformis*) and cisco (*C. artedii*) live in the lake but due to lack of adequate comparative skeletons no species identification has been attempted for *Coregonus* bones. Whitefish attain a larger size than ciscoes. The name "attihawmeg" or "poisson blanc," used in early accounts to describe the fish on which many of the northern fisheries were based, probably referred to a mixture of whitefish-like species.

Ecology and History

Because of their remote locations, northwest fur posts were encouraged by their companies to become largely self-sufficient in regard to food so that expensive provisioning from the east would not be necessary (Smythe 1968: 245; Innis 1970: 299-301). Thus posts such as Nottingham House and Fort Chipewyan were often purposely located on lakes and rivers providing abundant supplies of fish (Smythe 1968: 249). Whereas birds and mammals constituted welcome and necessary food, these sources were sometimes undependable and it was the post fisheries that supplied the traders with most of their dietary protein. Both men and dogs ate fish for much of the year, supplemented by other types of meat. Rations in 1824-25 at nearby Fort Chipewyan were four or five fish per man per day or eight to ten pounds of flesh, with three pounds of pemmican or dried meat per man per day when available. Dogs (and women) were allotted two fish per day. Other items such as grease, salt and potatoes were sometimes distributed (Krause 1972: 58-59).

Nottingham House fisheries were located on Lake Athabasca within about 15 miles of the post and included several islands as well as Old Fort Point on the south shore and the waters around Nottingham House itself (Krause 1972: 9-18). Fishermen moved from one fishing ground to another depending on season and size of catch. Gill netting was the major fishing technique used throughout the year; nets could be set up beneath the ice after freeze-up using a long stick ("jigger") and hauling line to pass the nets along a series of holes cut through the ice. Hook and line fishing was also practiced, especially for lake trout. The best fishing was during fall and early winter when fish of fine quality could often be had in great abundance. Whitefish spawned in shallow water at this time and constituted the majority of the catch. Walleye and pike were probably available year-round; Richardson (1836: 520) noted that pike would take bait at all seasons. Lake trout were fall spawners and were probably caught at that season as well as in winter and early spring. Sucker and burbot flesh was considered of poor quality (Richardson 1836: 520-21; Krause 1972: 11) but these fish were often numerous and were certainly eaten by the fur traders although they may not have been relished. Burbot, like whitefish and lake trout, move to deep water in summer but are available to shallow nets at other seasons; suckers are fish of moderately shallow waters. Goldeyes spawn in Lake Claire in the Peace-Athabasca delta west of Nottingham House, but this species may not have been common in Lake Athabasca itself. Except for two localities, Quatre Fourches and Lake Mamawi (Krause 1972: 48-64), the delta rivers and lakes seem not to have been extensively utilized as fisheries by fur traders of the region although they were spawning grounds for several species. Presumably fishing efforts were best spent on netting in Lake Athabasca.

Lake trout, walleye, goldeye, pike and whitefish are today common in Lake Athabasca although some species do not reach their former abundance, and commerical fisheries for these fish either existed in the recent past or still operate (Peace-Athabasca Delta Project Group n.d.). Although discussion of whitefish dominates early accounts of the lake's fish complement, lake trout, goldeye, pike, walleye, sucker and burbot are mentioned (Krause 1972; Fuller and La Roi 1971). It seems likely that whitefish, trout, pike and walleye were always both plentiful and much sought-after.

Fish at the Athabasca posts were preserved by three main methods: freezing, hanging, and splitting and drying. Most of the catch from fall and winter fishing could be frozen and would keep for months if the weather remained cold. Some fish were "hung" by stringing them on sticks through their gills; this technique was practiced in fall when days were cool (Krause 1972: 41). Lake trout, pike and whitefish were dried; this process may have been similar to a modern version in which the filets were split away from the backbone in such a manner that the fish could be hung to dry on wooden stages with the filets and backbones hanging down on opposite sides (Krause 1972: 12-13). Some dried fish were probably made into fish pemmican. Smoking and salting were preserving methods seemingly not often practiced at Fort Chipewyan (Krause 1972: 42) and perhaps not at Nottingham House either. Cooking methods for fish were simple - usually boiling to make a soup or stew (Richardson 1836: 519; Krause 1972: 22).

Cut Marks, Burning and Size

Signs of butchering and burning were rare on fish bones from the site. Twelve pike and five walleye fragments have marks presumably incurred in cutting up the fish. The bone most often cut was the cleithrum, the large bone behind the gills on either side, to which the pectoral fins attach. Eight pike and two walleye cleithra bore marks, usually along the inside of this bone's main curve, indicating that fish heads were removed from the bodies at this point. A pike dentary and maxilla are sliced in half vertically and two pike dentaries bear marks on their outer sides near the anterior ends. Two walleye parasphenoid bones have been sliced in half. Only 247 fish bones are burned, including some unidentified vertebrae and head bones, and 12 pike and one walleye head bones. Many elements had been chewed by carnivores, probably dogs kept at the post.

Most of the fish bones represent moderate-sized individuals of each genus or species; large individuals were uncommon. Small (young) fish under about one-half to three-fourths pound in weight were not found, presumably because they were either not caught with the size mesh used in netting or as a result of differential preservation or recovery.

Distributional Patterns

Fish bone distribution at the site is uneven with definite concentrations in some localities. Table 1 summarizes distribution of identified, unidentified and total fish bone for each archaeological feature.

Largest quantities of fish bone occur in the main house (structure 1) and the pitted area to the south of it. These are also the largest excavations in areal extent. The vicinities of the two small North West Company buildings (structures 3 and 4) contain lesser amounts of bone, smaller even then would be expected from the limited sizes of the areas dug. Four test trenches on both sides of the main house yielded the fewest bones. All seven species identified from the site were found in the main house and the pitted area, six in structures 2 and 3, five in structure 4, and four in the test pits (Fig. 1). Walleye bones were always first or second in abundance in the features, while pike ranked from first to third, and whitefish from first to fourth.

Two postholes (bones were found only in one - Table 2) and a pit indicate the location of what has been tentatively identified by the archaeologist as the post's storehouse. Only 169 fish bones were found in and around these features. In contrast, the largest local accumulation of fish bone was in pits A-B, the principal trash dump at the site. Seven hundred and seventy-eight identified and unidentified fragments were found in the two pits and another 138 were scattered about them.

Within the main house, the amount of fish bone in the four rooms increases from north to south (Table 3). Room A is noteworthy for its paucity of species; only pike occurs here whereas the remaining rooms contain bones of from five to seven species. The large pit in Room D contained more fish bone than any other pit (Table 2).

Table 1. Faunal Remains from Nottingham House: Summary of Fragments and MNI

Species	Str. 1	Str. 2	Str. 3	Str. 4	Pits A-B	Pit C	Pit D	Test Pits	Total	MNI
Fish										
Lake trout, *Salvelinus namaycush*	16	1	1	3	5	16	5	-	47	4
Whitefish or Cisco, *Coregonus* species	71	6	16	5	76	2	10	2	188	28
Goldeye, *Hiodon alosoides*	7	2	1	-	4	-	1	-	15	3
Northern pike, *Esox lucius*	29	9	6	27	61	11	29	12	184	24
Sucker, *Catostomus* sp. (including *C. catostomus*)	2	-	-	-	1	1	-	-	4	1
Burbot, *Lota lota*	4	1	5	8	2	1	-	3	24	4
Walleye, *Stizostedion vitreum*	160	13	15	22	114	13	41	4	382	33
Total identified fish	289	32	44	65	263	44	86	21	844	97
Unidentified fish	1352	137	67	161	653	36	209	99	2714	
Total fish	1641	169	111	226	916	80	295	120	3558	
Birds										
Whistling swan, *Olor columbianus*	1	-	-	-	-	1	2	-	4	1
Trumpeter swan, *Olor buccinator*	3	-	1	1	3	-	-	-	8	2
Small goose	23	1	-	-	2	1	-	-	27	5
Medium goose	387	19	31	19	141	24	16	20	657	32
Large goose	16	2	1	1	12	2	1	1	36	4
Mallard/Pintail/Gadwall, *Anas platyrhynchos/A. acuta/A. strepera*	31	-	-	7	11	3	38	1	91	10
Widgeon, *Mareca americana*	4	-	-	-	-	-	-	-	4	1
Green-winged teal, *Anas carolinensis*	1	-	-	-	-	-	-	-	1	1
Redhead, *Aythya americana*	1	-	-	-	-	-	-	-	1	1
cf. Ring-necked duck, *A. collaris*	-	-	1	-	-	-	-	-	1	1
Canvasback, *A. valisineria*	2	1	-	-	-	-	-	-	3	2
Duck species, Anatidae	20	5	2	1	9	1	10	-	48	-
Rough-legged hawk, *Buteo lagopus*	1	-	-	-	-	-	-	-	1	1
Hawk, *Buteo* sp.	-	1	-	-	-	-	-	-	1	-
Spruce grouse, *Canachites canadensis*	1	-	-	-	-	-	-	-	1	1
Willow ptarmigan, *Lagopus lagopus*	9	-	-	1	3	-	-	-	13	3
Sharp-tailed grouse, *Pedioecetes phasianellus*	1	-	-	1	3	-	-	-	5	1
Grouse-ptarmigan family, Tetraonidae	4	1	-	1	7	-	1	-	14	-
Sandhill crane, *Grus canadensis*	-	-	-	2	1	-	2	-	5	1
Herring gull, *Larus argentatus*	-	-	-	1	-	-	-	-	1	1
Raven, *Corvus corax*	-	-	-	1	17	-	-	-	18	2
Crow, *C. brachyrhynchos*	-	-	-	-	-	-	1	-	1	1
Total identified birds	505	30	36	36	209	32	71	22	941	71
Unidentified small bird	2	-	-	-	2	-	1	-	5	-
Unidentified medium bird	18	17	3	7	9	-	24	9	87	-
Unidentified medium-large bird	319	29	40	71	350	5	40	41	895	-
Unidentified large bird	160	94	37	74	194	26	41	52	678	-
Total unidentified bird	499	140	80	152	555	31	106	102	1665	-
Total bird	1004	170	116	188	764	63	177	124	2606	-

Table 1. Cont'd

Species	Str. 1	Str. 2	Str. 3	Str. 4	Pits A-B	Pit C	Pit D	Test Pits	Total	MNI
Mammals										
Snowshow hare, *Lepus americanus*	91	11	2	31	81	9	71	6	302	22
Beaver, *Castor canadensis*	6	4	-	1	2	-	1	-	14	2
Deer mouse, *Peromyscus maniculatus*	-	-	1	-	-	-	-	-	1	1
Vole, *Microtus* species	1	-	-	-	-	-	-	-	1	1
Muskrat, *Ondatra zibethicus*	-	3	-	-	-	-	-	1	4	1
Dog/Wolf, *Canis familiaris/lupus*	2	-	-	2	11	1	3	-	19	2
Dog, *C. familiaris*	2	73	-	9	1	-	2	1	88	2
Red fox, *Vulpes vulpes*	1	2	1	-	4	-	5	-	13	2
cf. Artic fox, *Alopex lagopus*	-	1	-	-	-	-	-	-	1	1
Marten, *Martes americana*	-	1	-	-	-	-	-	-	1	1
Wolverine, *Gulo luscus*	-	1	-	1	37	-	1	-	40	2
Lynx, *Lynx canadensis*	7	8	-	4	1	2	1	8	31	2
Moose, *Alces alces*	24	3	2	10	13	26	20	1	99	6
Caribou, *Rangifer tarandus*	-	-	1	-	-	-	-	-	1	1
Deer family, Cervidae	1	-	-	1	1	-	1	1	5	-
Bison, *Bison bison*	-	-	-	-	-	1	-	-	1	1
Total identified mammal	135	107	7	59	151	39	105	18	621	47
Unidentified medium mammal	11	6	-	4	29	-	8	5	63	-
Unidentified medium-large mammal	201	71	42	148	165	30	231	72	960	-
Unidentified large mammal	131	130	55	121	193	96	402	72	1200	-
Total unidentified mammal	343	207	97	273	387	126	641	149	2223	-
Total mammal	478	314	104	332	538	165	746	167	2844	-
Class Uncertain	109	21	5	73	63	-	41	39	351	-
Total Bone	3232	674	336	819	2281	308	1259	450	9359	-
Mollusca										
Fat mucket, *Lampsilis radiata*	1	-	-	-	-	-	1	-	2	2
Anodonta, *Anodonta grandis*	2	-	-	-	-	-	-	-	2	1
Freshwater clam, Unionidae	2	-	-	-	-	-	-	-	2	-
Total Molluscs	5	-	-	-	-	-	1	-	6	3
Total Faunal Remains	3237	674	336	819	2281	308	1260	450	9365	

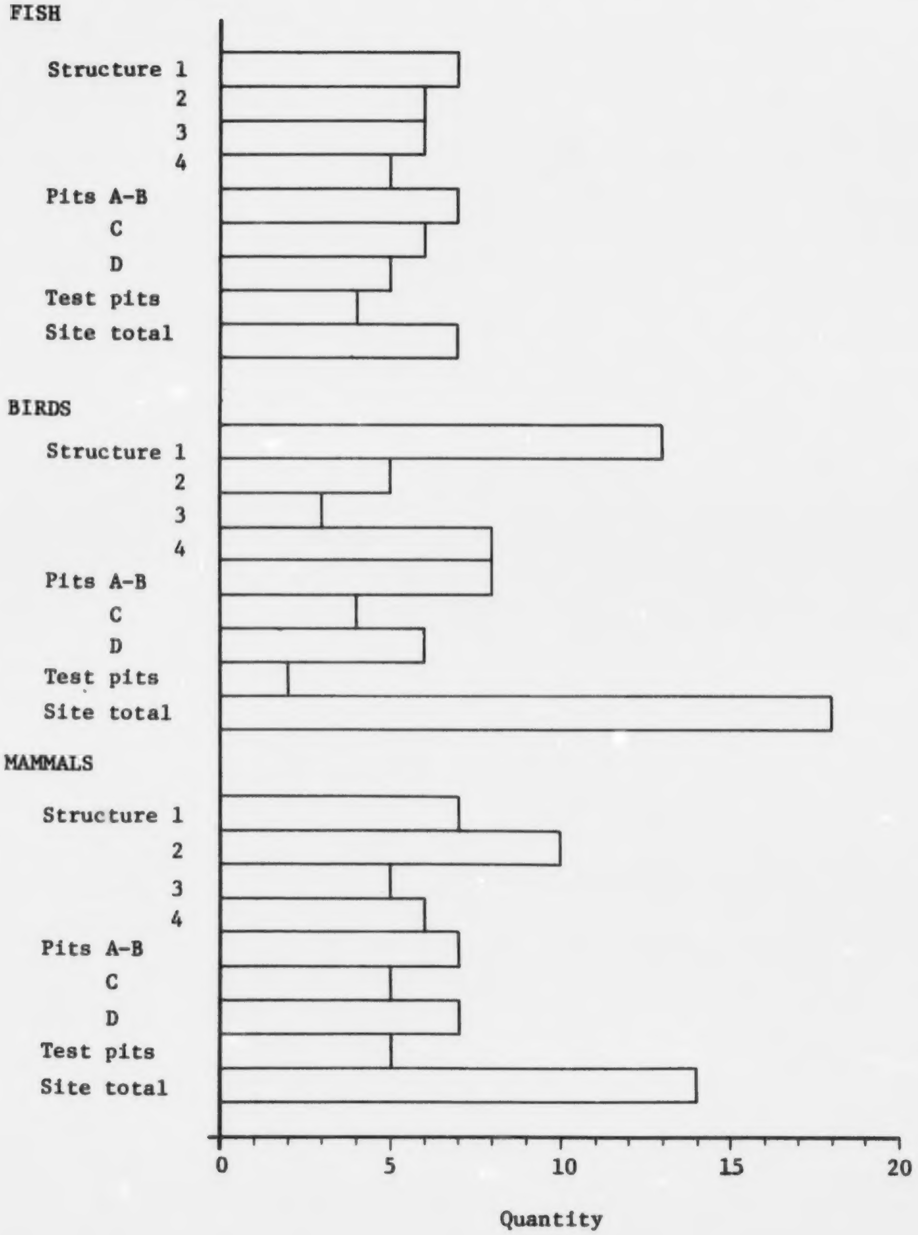

Figure 1. Numbers of species (or related groups) present in the archaeological features of Nottingham House. (Drawing by S. Epps.)

Table 2. Bones from Pits and Other Depressions

	Main House					Storehouse		Trash Pits			
Species	Room A - Cellar	Room B - Pit	Room C - Pit	Room D - large Pit	Room C - small Pit	Cellar	Post Hole	Pits A-B	Pit C	Pit D	Total
Fish											
Lake trout		2		4				5	15	3	29
Whitefish/Cisco		9		26	16		3	67	2	9	132
Goldeye		1		3	1			4		1	10
Northern pike		1		15	1		2	58	7	14	98
Sucker				2				1			3
Burbot				2				2	1		5
Walleye		9	23	52	36	1	2	106	5	23	257
Unidentified fish	4	41	9	445	108	7	1	535	28	105	1283
Total fish	4	63	32	549	162	8	8	778	58	155	1817
Birds											
Trumpeter swan			1					3			4
Small goose				18	2		1	2			23
Medium goose	1	15		275	29	1	3	123	13	4	464
Large goose	1			3	3			10	2		19
Mallard/Pintail/ Gadwall	1	5		16	1			10	1	16	50
Widgeon					3						3
Green-winged teal		1									1
Redhead		1									1
Canvasback							1				1
Duck		1		12	5			7	1		26
Willow ptarmigan	1	4		3				3			11
Sharp-tailed grouse					1			3			4
Grouse/Ptarmigan family	1	1						3		1	6
Sandhill crane								1		2	3
Raven								17			17
Unidentified bird	2	34	1	253	73	15	4	505	14	50	951
Total Bird	7	62	2	580	117	16	9	687	31	73	1584
Mammals											
Snowshow hare	5	4		13	23	8		72	3	28	156
Vole		1									1
Muskrat						1					1
Dog/Wolf								11		3	14
Dog						63		1		1	65
Red fox				1						3	4
Wolverine								18			18
Lynx				1							1
Moose	3		2	6	1	2		11	18	16	58
Deer family			1					2			3
Unidentified mammal	12	20	3	59	23	20	6	187	68	197	595
Total mammal	20	25	6	80	47	94	6	302	89	248	916
Class Uncertain		2		39	19	6		55		11	132
Total Bone	31	152	40	1248	345	124	23	1822	178	487	4449

Table 3. Fish Bone from the Interior of the Main House (Identified and Unidentified bone)

Room	Archaeological Provenience	Number of Bones	Total		Species Summary by Room
A	floor area	3			pike
	cellar	4	7		
B	floor area	6			lake trout, whitefish,
	hearth	5			goldeye, pike, walleye,
	pit	63	74		burbot
C	floor area	169			lake trout, whitefish,
	pit	32	196		goldeye, pike, walleye
D	floor area	611			lake trout, whitefish,
	hearth	17			goldeye, pike, sucker,
	large pit	549			burbot, walleye
	small pit	162	1339	1	
			1610	1	

Birds

Composition of the Bird Remains

Nineteen or more species of birds are represented in the faunal remains. There were 2606 bones found, 941 (36.1%) of which were identified to family or lower category. Geese are dominant in the material, constituting 720 pieces (76.5% of identified bird bone). Ducks account for 149 pieces (15.8%), swans for 12 pieces (1.3%), and the sandhill crane for 5 pieces (0.5%). Thus 94.2 per cent of identified bird bone at the site is derived from aquatic species. In terms of MNI, 85.7 per cent of individuals present were aquatic. Tetraonids (grouse and ptarmigan), the raven, crow, rough-legged hawk and herring gull (this latter species is not considered aquatic in the same sense as the previous group) make up the remaining 5.8 per cent of identified bone.

There were 1665 pieces of unidentified bone (63.9%) which were divided into four categories as follows: small bird, 5 pieces; medium bird, 87 pieces; medium to large bird, 895 pieces; large bird, 678 pieces. This material consists primarily of long bone fragments, with some vertebrae and phalanges. The five bones from small birds are potentially identifiable but cannot be identified with the available reference skeletons. Most of the medium to large and large bird fragments seem to be from geese.

Goose and Duck Species Identification

Goose bones have been lumped into three categories based on body size rather than being grouped by species because of the difficulty in identifying them on the basis of either bone configuration or bone size. At least six forms of geese could be expected to occur in the region. The medium-sized white-fronted goose (*Anser albifrons*) and lesser snow goose (*Chen caerulescens*) migrate across Lake Athabasca in spring and fall, and the tiny Ross' goose (*Chen rossii*) is also a migrant. In addition, three or possibly four subspecies of the Canada goose (*Branta canadensis*), of small, medium and large size, may be present as migrants or breeders.

Although many goose fragments cannot be referred to particular species or subspecies, some information can be gained from the few diagnostic elements present in the faunal sample. Most of the medium-sized goose bones seem to be snow and/or white-fronted geese on the basis of identification characters present on the sternum, furcula and coracoid. A few pieces in the medium goose category were referred to Canada goose based on bone configuration as well as occurrence of bones from young individuals (the Canada goose is the only goose to breed at the lake). Specimens in the large goose category were judged too large to belong to typical snow or white-fronted geese, but bones of some abnormally large individuals of these species could be included here. Several large goose bones show characteristics typical of the Canada goose, while in other bones the characters are indeterminate or the diagnostic bone portion is missing. Similarly, some bones of small geese are tentatively identified as Canada goose while others could be either Canada goose or Ross' goose. Despite identification problems, at least two species seem to be present - Canada goose and one other. More than two species are likely.

Another species grouping has been made for large ducks of the genus *Anas* that occur at Lake Athabasca: the mallard (*A. platyrhynchos*), pintail (*A. acuta*) and gadwall (*A. strepera*). Although mallard bones are usually larger and much more robust than those of pintails, there is some overlap between female mallards and male pintails. Gadwall skeletal elements are similar in size to those of pintails although in some measurements gadwall bones reach into the bottom of the mallard range. Gadwalls also tend to resemble mallards in the robustness of certain elements. In regions where gadwalls are absent, most mallards and pintails can be separated by using one or a combination of measurements. Where all three occur, most gadwall bones probably fall into the "pintail" group although a few might be classed with the mallards.

The humerus was the most abundant large *Anas* bone found at the site (21 pieces) and so was selected for detailed study. Using a table of comparative measurements as well as visual inspection, 13 pieces were identified as mallard. Eight fragments could be pintail or gadwall. Large bones probably from mallards show up among the other large *Anas* elements from the site.

Mallards and pintails have been abundant in modern times in the Athabasca delta, whereas gadwalls are less common. If this same situation existed during the occupation of Nottingham House, mallards and pintails would have made up the bulk of the large dabbling ducks caught.

Ecology and History

Waterfowl were an important source of meat at fur trade posts (Richardson 1836: 512-17; Innis 1970: 132-33; MacFarlane 1908: 303-22; Preble 1908: 297-304) and a welcome change from fish. In addition to their value as food, geese and swans yielded skins for export (Innis 1970: 307; Preble 1908: 309-10).

It is not surprising that the occupants of this site depended so heavily on aquatic birds, for Nottingham House was fortunate to be situated on the Peace-Athabasca delta, one of North America's richest waterfowl areas. All four major migratory bird flyways cross the delta and many species and vast numbers of individuals spend time in its lakes and marshes. Swans, geese, ducks and cranes are among delta inhabitants for varying periods of time each year. This diversity and abundance is reflected in the faunal material.

From April until June and again in September and October migrating waterfowl congregate in the delta lakes, ponds and streams. At these times birds, particularly geese, were shot in great numbers by the fur traders (MacFarlane 1908: 304-22; Preble 1908: 297-310). After the flights of migratory birds had passed in spring, breeding species still remained in the area. In late summer many of these birds, together with birds that had bred elsewhere, sought safety in the delta lakes during their moulting period. They were especially vulnerable to hunters at this time, for the flightless birds could be herded together and clubbed to death as well as shot (Richardson 1836: 514).

Land birds of the family Tetraonidae (grouse and ptarmigan) were abundant during certain seasons and it is known that they were important to some fur posts as a food source in winter, often a time of scarcity (Richardson

1836: 506-7). Spruce grouse (*Canachites canadensis*), ruffed grouse (*Bonasa umbellus*) and sharp-tailed grouse (*Pedioecetes phasianellus*) are permanent residents at Lake Athabasca although they sometimes make short migrations. Willow ptarmigan (*Lagopus lagopus*) and possibly rock ptarmigan (*L. mutus*) occur there only in winter (Godfrey 1966: 111-12). These species could be shot, netted, snared or sometimes even killed with clubs.

In general, numbers of waterfowl in the faunal remains reflect species size and/or availability. Swans, while they may not have been common, were large, meaty birds. Geese are large and were exceedingly numerous during migration. Mallards, pintails, gadwalls and canvasbacks are all good-sized ducks and were probably as abundant in the vicinity of Nottingham House during the 19th century as they have been in the 20th. Waterfowl census counts made on the Peace-Athabasca delta in 1969 and 1970 (Nieman and Dirschl 1973) showed these four large duck species to be among the most common ones in the area.

Twelve of the 16 duck individuals from the site are dabblers (mallard group, teal and widgeon) and only four (redhead, ring-neck and canvasback) are divers although quite a few species of fairly large diving ducks are found in the area. However, divers are often more difficult to catch than dabblers because of their preference for more open, deeper water and their flesh is sometimes considered less tasty. Thus there may have been some deliberate selection for dabbling ducks and against diving ducks.

Cut Marks, Burning and Cooking

Cut marks on many bird bones attest to butchering and eating activities. One hundred and fifty-four of 720 goose fragments (21.4%) bore cuts at one or more locations. All major skeletal elements except the skull had cuts, even distal wing and leg elements (carpometacarpus and tarsometatarsus). Whereas many cuts occurred at bone ends and can be interpreted as signs of carcass disarticulation, faint marks also appeared along long bone shafts and probably were caused after cooking when meat was stripped from the bones (see also discussion of cuts in the mammals section). Abundant cuts on scapula, furcula, coracoid and humerus signify disarticulation of the wing at the shoulder and marks on the distal humerus and proximal radius and ulna ends show that the lower wing was sometimes removed at this joint. The hind leg was also sometimes separated at one or more points, most often at the distal leg joint (between the tibiotarsus or "drumstick" and the tarsometatarsus). Cuts on ventral surfaces of some sterna indicate that the breast muscle masses were removed either before or after cooking.

Cuts on the shafts of two sandhill crane humeri and a whistling swan tibiotarsus shaft and humerus shaft may be the result of meat removal. Marks on two trumpeter swan coracoids, one furcula, and a scapula seem to indicate wing disarticulation at the shoulder. Since only 17 bone pieces from these very large birds were recovered from the site, nothing more can be said about the manner in which the carcasses were butchered.

Among the 149 duck bones were 21 (14.1%) with cut marks: 17 mallard/pintail/gadwall, 1 widgeon, 1 canvasback, and 2 unidentified duck. Location of marks mainly at shoulder and elbow joints suggests that wings were cut apart both above and below the humerus. Two tibiotarsi were cut at their distal ends, probably to remove the lower leg. One sternum was sliced lengthwise to separate the breast muscles. Eight shaft cuts may indicate meat removal.

A comparison of goose and duck cut marks reveals that approximately one of every five goose bones was cut compared to one out of seven duck elements. This may reflect the need to cut larger birds into more pieces for cooking.

Only two of 33 bone pieces (6.1%) from grouse and ptarmigan were cut. A willow ptarmigan scapula had marks along the shaft and a humerus referred to Tetraonidae was cut at its proximal end. As with the larger birds, these marks seem to denote cutting away of the wing at the shoulder.

There is no obvious pattern in distribution of bird elements to indicate that some butchering was carried out beyond the site boundaries. All major skeletal elements are present in the duck and goose samples, although among the goose bones the tarsometatarsus seems to be underrepresented, suggesting that the feet of geese may have been discarded elsewhere. No cuts were found on any of the crow, raven, gull, or hawk bones.

Among the 1665 unidentified bird bones, 61 were cut. Many of these marks were along bone shafts while some were disarticulating cuts at bone ends. Two hundred and fifty-five (9.8%) out of a total of 2606 bird bones from the site were cut.

Only 34 identified bird bones were burned or calcined: 16 goose, 7 duck, 5 grouse and ptarmigan, 1 whistling swan and 5 raven. Of these, 5 goose, 4 duck, all 5 tetraonids and the 5 raven bones occurred in the excavations encompassing trash pits A-B. One hundred and nineteen unidentified bird fragments were burned. Of the total bird bone found at the site (2606 pieces), 172 fragments (6.6%) were burned.

Little is known about methods for preserving and cooking birds at Nottingham House. The journal entry for 27 September 1804 (Allen 1976a) notes that four kilograms of geese and ducks were salted. Innis (1970: 133), Preble (1908: 297), and Richardson (1836: 515) mention in their accounts of the fur territories that geese were frozen or salted. The only cooking method reported is boiling (Innis 1970: 133).

Interpretation of butchering marks on the bones shows that carcasses were often well-disarticulated, perhaps to fit better in a boiling pot.

Medullary Bone, Age and Sex

Three femora, two tibiotarsi and an ulna from geese contained medullary bone. This soft, bony substance is deposited in the bone marrow cavities of breeding female birds before and during egg-laying, where it serves as a calcium source for developing eggshells (Rick 1975b). The presence of medullary bone in faunal remains therefore indicates that the birds from which the bones came were killed during spring, and also reveals the sex of the birds. Thus we know from these remains that spring goose-hunting was practiced at Nottingham House. All six goose fragments containing medullary bone were found in the main house, specifically Rooms C and D.

Medullary bone was also found in some unidentified bird fragments as follows: medium bird (slightly larger than duck) - 1 femur; medium to large bird - 7 long bone shaft fragments; and large bird - 5 tibiotarsi, 2 ulnae and 1 radius fragment. These were present in all four structures, as well as pits A-B and D.

Most bird bones found are from adults, but some elements from young individuals were noted. Two mallard/pintail/gadwall and ten goose fragments are from very young birds that must have been caught during summer. A score or more other duck and goose bones, primarily those of the lower leg, show some signs of immaturity and are probably from early fall migrants rather than summer juveniles. Although bird skeletons ossify rapidly, the tarsometatarsus, and the tibiotarsus to a lesser degree, may remain more or less porous until well into autumn. Thus the "young" look of these bones does not necessarily indicate that the birds were killed during summer.

Worked Bone

Only one avian bone - the left ulna of a large bird, possibly a goose - exhibits signs of having been intentionally worked. (See Miscellaneous Worked Bone and Antler in Karklins' accompanying report.)

Distributional Patterns

Table 1 shows the distribution of identified, unidentified, and total bird bone throughout the site. The main house (structure 1) and the area of pits to the southeast of it contain the largest concentrations of bone. The sites of the North West Company buildings (structures 3 and 4) yielded little bone in proportion to the main house; these areas are one-third to one-half the size of the house excavations but contain only about one-eighth as much bone. At least 13 species of birds are present in structure 1, 8 in structure 4 and pits A-B, 6 in pit D, 5 in structure 2, 4 in pit C, 3 in structure 3 and 2 in the test pits (Figure 1). Geese and ducks of various kinds occur in all features, swans in all but structure 2, tetraonids in all but structure 3 and pit C and cranes in structure 4 and pits A-B and D.

Within the main house bird bone was most abundant in Room D (789 fragments) and least common in Room A (26 fragments). Room D also contained the most identified species of any room (Table 4). Two hundred and seventy-five goose bones were recovered from the large pit in Room D. The site's four widgeon bones all came from Room D and could represent a single bird.

Duck bones are distributed throughout the various features but are concentrated in structure 1 and the pitted area to the south of it. Geese (720 bones) and the

Table 4. Bird Bone from the Interior of the Main House (Identified and Unidentified Bone)

Room	Archaeological Provenience	Number of Bones	Total	Species Summary by Room
A	floor area	19		goose, mallard/pintail/ gadwall, ptarmigan, Tetraonidae
	cellar	7	26	
B	floor area	8		goose, mallard/pintail/ gadwall, medium duck, redhead, ptarmigan, teal, Tetraonidae
	hearth	2		
	pit	62	72	
C	floor area	68		trumpeter swan, goose, mallard/pintail/gadwall
	pit	2	70	
D	floor area	92		whistling swan, goose, mallard/pintail/gadwall, widgeon, spruce grouse, ptarmigan, medium duck, sharp-tailed grouse, Tetraonidae
	large pit	580		
	small pit	117	789	
			957	

grouse-ptarmigan group (33 bones) have a similar pattern.

Trumpeter and whistling swans are represented by a much smaller number of bones (12). These are scattered over the site and no obvious patterns emerge except for the concentration in structure 1 and the pitted area which is characteristic of most of the bird bone groups.

Species that can be considered scavengers or nuisance birds include the raven, crow, herring gull, rough-legged hawk and hawk (*Buteo*) which are not good game birds as are the waterfowl, grouse and ptarmigan. Only one bone, a tarsometatarsus of a rough-legged hawk, occurs in the main house (Room B), whereas many of the edible species occur there. Raven bones exhibit a striking clumped distribution. Seventeen bones representing two birds occurred in trash pits A-B and the only other bone of this species was found to the southwest in structure 4. Two individuals were probably discarded whole into the trash pits.

Mammals

Composition of the Mammal Remains

A total of 2844 mammal bones was recovered from the excavation. Of these, 621 (21.8%) were identifiable at least to family and 2223 (78.2%) could not be identified beyond class. Fourteen or 15 species were present, of which two, the deer mouse and vole, are probably accidental at the site. Three hundred and two bone pieces (48.6% of the identified mammal bone) are from the snowshoe hare and 99 pieces (15.9%) from moose. Of 47 individuals counted, 22 (46.8%) are snowshoe hare and six (12.8%) are moose. All remaining species are represented by only one or two individuals.

Unidentified mammal bone consisted of 2223 pieces, divided into rough size categories as follows: medium mammal, 63 pieces; medium to large mammal, 960 pieces; and large mammal, 1200 pieces. Many long bone shaft fragments, vertebral fragments, and rib pieces are included among the unidentifiable bone material. Most of the medium to large and large mammal scrap probably represents waste from ungulate (primarily moose) butchering and cooking, while the medium mammal bones may have come from hares and other species up to lynx or wolverine size.

Ecology and History

Both aquatic and terrestrial, food and fur mammals lived in the region of Nottingham House. Twenty species woodchuck-size or larger ranged through the area: porcupine, woodchuck, beaver, muskrat, otter, snowshow hare, wolf, Arctic fox, red fox, ermine, mink, marten, fisher, skunk, wolverine, lynx, black bear, moose, caribou, bison and perhaps also the grizzly. Thirteen species in this size range occur among the Nottingham House faunal remains: twelve wild forms and the domestic dog.

Mammalian meat was a valuable protein source to the traders on Lake Athabasca and large mammals provided a welcome quantity of flesh to be eaten fresh or dried for the yearly spring canoe journeys. Innis (1970: 300) remarks that "Fort Chipewyan depended on a supply of buffalo, moose and caribou meat, and especially on the fisheries" and the same situation surely applied to Nottingham House. Moose, woodland caribou and bison could be found in the delta lowlands or surrounding higher areas throughout the year and barren-ground caribou would have been available in large numbers at the eastern end of the lake during their spring and fall migrations. That hunters from the delta settlements made use of the caribou resource over a hundred miles away at the east end of the lake is noted by Fuller and La Roi (1971: 156), quoting the naturalist John Macoun's 1875 journey: "The meat for the supply of the fort (Fort Chipewyan) is procured beyond Fond-du-lac, at a point where the caribou pass from the 'Barren Lands' to the woods, which they always do in autumn." Stragglers from the main herds of barren-ground caribou would have occasionally wandered westward into the range of local hunting parties in the delta region.

Beavers were eaten by fur traders as well as Indians in the region. They were often killed by hunters in Alexander Mackenzie's party during their journey northward from Fort Chipewyan to the mouth of the Mackenzie River in 1789 (Mackenzie 1911: 198, 202, 216), and MacFarlane (1908: 253) remarked that beaver were eaten by both Indians and northern whites. The Nottingham House journals mention that a beaver tail was obtained from an Indian on 28 October 1802, and entries for 15 April and 3 September 1803 also note that beaver meat had be received from Indians (Allen 1976a). Snowshoe hares were also valuable as food in the North, particularly in winter (Preble 1908: 199-202; Innis 1970: 299-300; Richardson 1836: 497). On 25 December 1804, people at Nottingham House were catching rabbits (hares), according to the journals (Allen 1976a). Other wild species may have been eaten by the men at the post; certainly Indians in the region must have eaten many animals we would not consider food.

Moose, caribou and bison were primarily meat animals although their hides were used for robes and clothing. Beaver and hare provided both meat and valuable furs. Other wild species at the site (excluding the mouse and vole) would have been most important as sources of furs although these animals may have been eaten when more preferred food was unavailable.

The most common species at Nottingham House were hare (MNI - 22) and moose (MNI - 6), constituting 46.8 per cent and 12.8 per cent, respectively, of the identified individuals and this abundance reflects their importance as food. Although the amount of meat contributed by a single hare is small, the high number of individuals identified at the site shows that this species was a valuable meat source. It is interesting that species classified primarily as furbearers are represented in the faunal remains by only one or two individuals. Although many pelts of these species must have passed through the Nottingham House storehouses, few bones remain to indicate their abundance in the region. Muskrats, particularly, are noteworthy in this respect because in most years (except when water levels fell to unusually low levels) they would have been extremely numerous in the delta. Yet only a single individual represented by four bone fragments occurs in the faunal record. The only domestic mammal recorded from the faunal remains is the dog.

Arctic foxes (*Alopex lagopus*) usually range farther north than Lake Athabasca but individuals do occasionally wander as far south as the lake. A right proximal ulna fragment has been assigned to Arctic fox based on the bone's small size rather than on shape differences. However, the fragment's calcined state raises the possibility that its size is due to bone shrinkage rather than species difference, and the identification should be considered tentative.

Dogs and Wolves

Dogs were present at many fur trade posts where they were used for hauling sledges. At Nottingham House, 107 *Canis* fragments were found, representing four individuals. Eighty-eight pieces have been assigned to *Canis familiaris* (domestic dog); 87 are from animals approximately the size of Eskimo dogs (Allen 1920: 442-49), and a radius fragment from Room C in the main house is from a much smaller dog. Nineteen bones, from two individuals, are from canids larger than the typical Eskimo dog. Eleven small fragments from a canid lower jaw painted with red ochre are probably wolf and possibly also a humerus, radius and ulna (pit D) from an animal or animals 9-12 months old. Crosses between wolves and dogs were valued in the north (Richardson 1836: 492-93; MacFarlane 1908: 183), so that in the Nottingham House area there may have been many animals of mixed dog-wolf blood. For this reason the 19 bones have been assigned to the *Canis* species (*familiaris/lupus*) rather than unequivocally to large dog or wolf.

Coyotes did not occur north of the 55th parallel before 1829 (Banfield 1974: 289) and thus are not considered in the present discussion of canid remains.

Body Parts Recovered

Table 5 summarizes mammalian body parts recovered from the excavations. For seven species, bones from at least three major body regions are present, suggesting that whole carcasses of these forms were brought to the site. The deer mouse and vole are represented only by skull fragments; these small rodents occur naturally in the area and their remains are probably not part of the cultural refuse. The marten is identified from a single calcaneum but this ankle bone might have been left in the skin when it was prepared and does not necessarily represent a carcass on site. Caribou and bison occur on the basis of a single radius fragment each, so that little can be said about the presence of these large food mammals except that front limbs or parts of them were there. It is even possible that the caribou fragment, a distal end flattened on one surface, might have been part of a tool brought from another locality rather than remains of food at Nottingham House. However, this bone does not look like part of a well-made tool but instead resembles a piece of bone that might have been picked up and used for some momentary purpose.

Table 5. Summary of Body Parts Among the Identified Mammal Remains

Species	No. of Pieces	Head	Vertebrae	Proximal Limbs	Distal Limbs*
Hare	302	X	X	X	X
Beaver	14	X	-	X	X
Deer mouse	1	skull	-	-	-
Vole	1	skull	-	-	-
Muskrat	4	mandible (2)	-	tibia (2)	-
Dog/wolf	19	X	X	X	-
Dog	88	X	X	X	-
Red fox	13	X	-	X	X
Arctic fox	1	-	-	ulna	-
Marten	1	-	-	-	calcaneum
Wolverine	40	X	X	X	X
Lynx	31	-	X	X	X
Moose	99	X	X	X	X
Caribou	1	-	-	radius	-
Cervidae	5	-	X	X	-
Bison	1	-	-	radius	-

* Carpals, tarsals, metacarpals, metatarsals, phalanges.

Cut Marks on Bones

Food and skin preparation marks on bones are of three types: skinning cuts made during removal of the pelt, marks incurred during butchering and meat removal cuts. Skinning cuts differ from butchering cuts mainly in position; they are most easily recognized in mammals on lower and upper jaws, around the orbits and on lower leg shafts. Butchering cuts occur mainly at joints, a notable exception being ribs, which are often cut or cracked below their articulations with the vertebrae to remove the side meat. Meat removal cuts are more difficult to interpret; in general they can be defined as shallow cuts along long bone shafts, often in areas that in life have a thick covering of muscle. They may have been made during eating, as the human diner cut cooked meat from the bone with his knife. Alternative explanations are that meat was boned before cooking in such dishes as stews or that the marks represent defleshing cuts incurred during the preparation of dried meat. This latter alternative may be particularly relevant to meat removal cuts on ungulates.

Seventy-six identified mammal bones bore cut marks, as follows: hare, 6; beaver, 1; dog, 4; red fox, 3; wolverine, 3; lynx, 2; moose, 56; and Cervidae, 1. Cuts were also noted on 57 unidentified large mammal bones; only two medium and four medium to large mammal bones were cut. Seven of the 76 identified cut bones contained definite skinning cuts - along the horizontal ramus of a hare and a moose mandible, on two horizontal mandible rami of wolverine and two of red fox and on a red fox maxilla above the carnassial tooth. All seven marks would have been made when the skin was cut away from the head at the lips. Cuts on a wolverine radial carpal and a lynx calcaneum may have been made when skinning out the feet or could result from carcass butchering (removing the feet); a cut near the distal end of a lynx metatarsal probably shows that the foot of this animal was skinned out at this point. It is interesting that all cuts found on the furbearing red fox, wolverine and lynx can be interpreted as relating to skinning rather than butchering.

Four of the five non-skinning cuts on hare bones are definitely signs of butchering and occur on pelvis, femur and scapula; the fifth cut probably resulted from meat removal. The single cut on a beaver bone is at the distal end of a humerus and is also a butchering mark. All four cuts on dog bones seem to be butchering cuts: crosswise hack marks on an ilium, a cut on the distal end of a humerus, another above the ulna semilunar notch and lateral cuts on an axis vertebra. Cuts on 55 moose bones and a Cervidae bone seem to be butchering marks although some of the moose cuts are difficult to interpret. Major cut marks on moose elements are summarized in Table 6.

Meat removal cuts are much less common on mammals than on birds from Nottingham House.

Cuts on mammal bones tend to confirm remarks made earlier about fur and food uses of species represented in the faunal remains, but one must remember that the bone samples are very small except for hare and moose. Although bones from different parts of the skeletons of red fox, wolverine and lynx are present, there is no definite indication of systematic butchering preparatory to cooking; the cuts are mainly skinning cuts. This is consistent with these animals being killed for their pelts alone and brought into the settlement to be skinned. Beaver and hare, which from available historical evidence were dual-purpose mammals (food and skins), exhibit butchering cuts that served to disarticulate the carcasses into manageable pieces for cooking, thus indicating these species use as food. Cuts on dog bones imply that the carcasses were disarticualted so that they could be used as food. The abundant butchering marks on moose bones show that these large ungulates were divided into

Table 6. Summary of Major Cut Marks on Moose Bones

Element	Description	No. cut/ total no of pieces including this bone area	Per Cent
Mandible	skinning cut below molar	1/1	100
Cervical vertebra	crosswise chop marks	4/4	100
Lumbar vertebra	lengthwise cuts above or below transverse process	2/3	67
Scapula	cuts around glenoid fossa	1/2	50
Humerus, P end*	cuts on greater tubercle & head	1/1	100
" D end	cuts on or near articular area	4/7	57
Radius, P end	cuts anteriorly at articulation	4/6	67
" D end	cuts at or near fused ulnar end	3/5	60
" shaft	faint cuts along shaft	1/3	33
Ulna, P end	cuts at articular area	4/7	57
" P half	cuts on posterior shaft edge	2/4	50
Carpals	various cuts, mostly posteriorly	5/15	33
Pelvis	cuts in acetabular area	3/5	60
Tibia, P end	chop or cut marks	2/4	50
" D end	cuts dorsomedially at articulation	2/5	40
Fibula, D end	cuts at articulation with calcaneum	1/4	25
Tarsals	miscellaneous cuts	4/8	50
First phalanx	cuts at distal ends	2/3	67

*P - proximal; D - distal.

many pieces.

Most cut marks were made with knives. Eight moose bones - five vertebrae, two distal humerus ends and the proximal end of a tibia - have been sectioned with an axe. A moose antler fragment bears obvious signs of sawing. Although bones from this site were not systematically examined for man-made hammer and anvil fractures as described by Bonnichsen (1973: 9-24), one moose bone from pits A-B contains a clear anvil mark. Such marks indicate deliberate breakage of fresh bone.

Burning, Meat Preservation and Cooking

Eight hundred and twenty unidentified and 103 identified mammal bones were burned, for a total of 923. Most of the burned unidentified fragments and 78 of the burned identified pieces occurred in the area encompassing the three borrow/trash pits.

Methods of preserving and cooking meat at the Lake Athabasca fur posts are not well-known. One of the most enlightening historical statements on the subject appears in Smythe (1968: 246) and describes conditions at Fort Chipewyan in 1843: "We live upon whitefish chiefly, varied with dried or fresh moose meat, or buffaloe, as the hunters send it in. Pemmican is not much used and except upon the voyage, we have it as a stand by." Both bison (Richardson 1836: 501) and moose (Innis 1970: 300) were made into pemmican in the northwest. Pemmican and dried meat were obtained from the Indians by the Nottingham House traders (Allen 1976a) and these two forms of preserved meat were probably the most usual ones. Allen (1976a) notes that on 27 September 1804, the men of Nottingham House salted one kilogram of moose meat as well as geese and ducks. There is no documentary evidence that meat was smoked at the house, although it may have been. Presumably fresh meat obtained during winter was frozen or dried when it was not to be used immediately. Fresh meat was probably boiled or roasted.

Age and Sex

Most identified mammal bones were classed as adult based on their complete epiphyseal fusion. Seven hare long bones and two beaver metacarpals had the fusion lines between epiphysis and diaphysis still visible and were therefore termed young adults. Three beaver long bones were immature because ephiphyses were unfused and missing, but were from individuals over six months old. Four hare vertebrae had unfused centrum epiphyses but since these vertebral epiphyses fuse quite late in life in most mammals they are not particularly useful for age and season estimation. Two moose bones, a distal radius and a distal tibia epiphysis were immature and from animals more than six months old. Three long bones identified as dog/wolf were from one or more animals 9-12 months old.

Very little information concerning sex of mammals at the site could be deduced from the faunal remains. Two adult wolverines are present, a small and a large individual, and these are likely to be female and male since there is a pronounced sexual size difference in this species. No moose frontal bones were recovered so nothing can be said about sex of this species at the site on the basis of antler growth. One moose antler fragment (which had been sawn) was identified, but since shed antlers could have been collected in the bush to be fashioned into tools or other items, the antler piece does not necessarily indicate that a male moose was brought to the site.

Worked Bone

Intentionally worked mammal bone includes a caribou radius awl, two moose metatarsal fleshers, four unidentified bone objects, and several miscellaneous pieces. These are described in Karklins' accompanying report.

Distributional Patterns

Distribution of mammal bone over the site is presented in Table 1. By far the largest amount occurs in and around the four trash pits (A-D) and the second largest amount is from the main house. Lesser quantities are found in the other features, following the pattern of fish and bird remains. At least ten species are recorded from structure 2, seven from structure 1 and pits A-B and D, six from structure 4 and five from structure 3, pit C, and the four test pits (Figure 1).

The moose and snowshoe hare are the only mammals to be found in all the structures and pits at the site. Lynx remains occur in all but one of the recorded bone-producing features. Although 302 mammal bone fragments came from pits A-B (more than from any other below-ground feature), mammal bone was less abundant in this feature than bird or fish bone (Table 2).

Bone quantities and number of species in the main house were largest in Room D (Table 7). Room A, including the cellar, contained only 13 identifiable mammal fragments, seven of which were snowhoe hare and one of which was a beaver incisor. The remaining five identifiable pieces were parts of two moose metatarsal fleshers, the only such tools found at the site.

Fox bones occur mainly in pits A-B (a metatarsal) and D (a skull and two mandibles) although a single humerus occurs in the large pit in Room D of the main house and an ulna in

Table 7. Mammal Bone from the Interior of the Main House (Identified and Unidentified Bone)

Room	Archaeological Provenience	Number of Bones	Total	Species Summary by Room
A	floor area	24		hare, beaver, moose
	cellar	20	44	
B	floor area	14		hare, vole, moose
	pit	25	39	
C	floor area	104		hare, beaver, dog,
	pit	6	110	lynx, moose, Cervidae
D	floor area	120		hare, beaver, red fox,
	hearth	1		lynx, dog/wolf, moose
	large pit	80		
	small pit	47	248	
			441	

structure 3. Lynx remains are scattered throughout the site in the occupation layer; only two pieces occur within the main house and one of these is in Room D. Wolverine bones are concentrated south of the house; 18 of a total of 40 fragments are in pits A-B and 19 pieces, which seem to be part of a single skull, occur in the area immediately adjacent to the pits. Bones from both a small and a large wolverine were found in the pits.

Sixty-three dog bones from the warehouse cellar and 10 from the area around it may all be part of a single animal deposited in the pit.

Fourteen beaver fragments from at least two animals were identified, eight in the southern portion of the site and six in the main house. The main difference in distribution between the beaver which provided both fur and food and the species that are primarily fur bearers is that a larger proportion of remains from the edible beaver are found inside the main house. Snowshoe hare bones follow the beaver pattern. The remaining two furbearers at the site, the muskrat and marten, are represented by four and one bone, respectively, and thus do not exhibit a pattern. The remains were found in and around the storehouse.

Of the ungulates, bison and caribou are represented by single radius fragments found adjacent to pit C and in structure 3, respectively. Moose bones occur in all the archaeological features with the largest concentration in pits A-D. Twenty-four moose bone fragments were found inside the main house, 14 of which were foot or ankle bones. Room A contained on incisor and parts of two fleshers, and Room B an antler fragment. Two carpals and two cervical vertebrae were recovered from the floor of Room C, and a carpal and a thoracic vertebra from the pit in the same room. The largest quantity of moose bones was in Room D: a phalanx and three long bone fragments came from the floor area, six pieces from a single left hind leg were in the large pit, and the small pit contained only a carpal. Although many moose long bone fragments were found in the southern portion of the site, they were found only in Room D of the main house. Forty-four of the 99 moose bones occurred in pits.

Molluscs

Freshwater clams are uncommon in the Lake Athabasca region. Only two types (both in the family Unionidae) now occur there: the fat mucket (*Lampsilis radiata*) and one of the anodontas (*Anodonta grandis*) (Clarke 1973). The anodonta has a much thinner and lighter shell than the mucket. Fragments of both species were found in the faunal remains.

One mucket fragment was found in layer 1 in Room D in the main house, while the second piece came from the fill of pit D. The two anodonta fragments and both unidentified fragments were recovered from the large pit in Room D. Recovery of freshwater clam remains from pit proveniences indicates their association with the past occupation rather than subsequent deposition by animals such as otters which may occasionally bring clams on shore to eat.

Discussion and Conclusions

Diet at Nottingham House

When the number of individuals of each species at a site is known, it is possible to convert MNIs into estimates of meat provided by these animals. An average adult live weight for each species (or perhaps each sex of a species) is obtained from biological sources, converted to a weight of edible meat and then multiplied by the number of individuals present. Both live weight and usable weight figures for the same species may vary from one report to another depending on what adjustments and refinements to the procedure are made. For example, members of a species may be larger in one region than in another so that average weights for the two regions differ, average figures may be reduced to take into account young animals, or estimates of the percentage of usable meat a species provides may differ because cultures utilized carcasses in different ways. The resultant list of meat quantities provided by each species should indicate their proportional importance as food.

Historical sources reveal that life at Nottingham House was precarious and the men were sometimes near starvation. Undependability of the natural food supply (fish and game), unproductivity of gardens planted at the post and harassment by rival companies all combined to produce a poor existence at best. Yet it is exactly this sort of marginal living situation that faunal analysis is ill-equipped to reveal. Although it is usually possible to obtain an indication of proportional importance of species through faunal analysis, true actual meat quantities can never be known. This should be borne in mind when interpreting any zooarchaeological study.

Table 8 presents meat weight values for most species present at Nottingham House. All seven fish species are assumed to represent food, but not all birds and mammals. The raven has been excluded because excavation data indicate that these two carcasses were probably discarded whole and thus would not have been food. Herring gull, rough-legged hawk and crow are included in the meat calculations for there is no direct evidence that they were not eaten. No cut marks were found on any bones of these four species.

Deer mouse and vole are excluded from Table 8 for they were probably either pests or not connected with the occupation. Dogs and the dog/wolf category are counted as food items because some dog bones possess butchering marks. Dogs at fur posts were used mainly for hauling but the men were not above eating them. The Nottingham House journal entry for 14 February 1806 states that the Canadians stole and ate the fattest and best dog at the post (Allen 1976a). Muskrat, foxes, marten, wolverine and lynx may have been eaten although none of their bones have definite butchering marks.

Mammals provided most of the meat (1481.92 kg, 84.0%) at Nottingham House according to evidence from the faunal remains. Fish yielded 142.3 kg (8.1%) and birds nearly the same amount as fish (139.4 kg, 7.9%). Whitefish contributed only 2.3 per cent of the total meat at the site compared to 61.8 per cent for moose and 5.7 per cent for geese. Among the fish, whitefish represents 28.7 per cent of the meat, less than the high-ranking pike (30.7%). Most of the bird meat came from geese (100.83 kg, 72.3%). Moose, bison, and caribou provided almost all the mammalian flesh (1379 kg, 93.0%) and ranked first, second and third, respectively, in amount of meat provided by all species at the site.

Moose meat was obviously an important dietary item at Nottingham House, probably due to the species availability in the immediate vicinity throughout the year. Only one caribou

Table 8. Amount of Meat Provided by the Animals Found at Nottingham House

Species	MNI	Live Weight per Individual (kg)	Usable Meat per Individual (kg)	Total Usable Meat (kg)
Fish				
Lake trout	4	4.54	3.63	14.52
Whitefish	28	1.82	1.46	40.88
Goldeye	3	.75	.60	1.80
Pike	24	2.27	1.82	43.68
Sucker	1	1.36	1.09	1.09
Burbot	4	1.36	1.09	4.36
Walleye	33	1.36	1.09	35.97
Total fish				142.30 (8.1%)
Birds				
Whistling swan	1	6.81	4.77	4.77
Trumpeter swan	2	11.35	7.95	15.90
Small goose	5	1.75	1.23	6.15
Medium goose	32	2.60	1.82	83.20
Large goose	4	4.10	2.87	11.48
Mallard/pintail/gadwall	10	1.00	.70	7.00
Widgeon	1	.80	.56	.56
Green-winged teal	1	.32	.22	.22
Redhead	1	1.00	.70	.70
Ring-necked duck	1	.70	.49	.49
Canvasback	2	1.20	.84	1.68
Rough-legged hawk	1	1.08	.76	.76
Spruce grouse	1	.50	.35	.35
Willow ptarmigan	3	.64	.45	1.35
Sharp-tailed grouse	1	.75	.53	.53
Sandhill crane	1	4.54	3.18	3.18
Herring gull	1	1.12	.78	.78
Crow	1	.43	.30	.30
Total bird				139.40 (7.9%)
Mammals				
Snowshoe hare	22	1.40	.70	15.40
Beaver	2	15.90	11.13	22.26
Muskrat	1	1.15	.81	.81
Dog/Wolf	2	22.50	11.25	22.50
Dog	2	9.00	4.50	9.00
Red fox	2	3.65	1.83	3.66
cf. Arctic fox	1	3.20	1.60	1.60
Marten	1	.90	.63	.90
Wolverine	2	13.60	9.52	19.04
Lynx	2	7.70	3.85	7.70
Moose	6	363.20	181.60	1089.60
Caribou	1	124.90	62.45	62.45
Bison	1	454.00	227.00	227.00
Total mammal				1481.92 (84.0%)
Grand total				1763.62

Note: Usable meat is a percentage of live weight, as follows: fish - 80%, birds - 70%, heavy-bodied mammals - 70%, long-legged mammals - 50%.

and one bison occur in the faunal remains and, although each individual provides a substantial quantity of meat, they are not nearly so important as moose. This scarcity of caribou and bison at the site could be due to pressures exerted on the Nottingham House men and their Indian hunters by other, more powerful traders. The North West Company was adept at harassing their weaker rivals and may have kept them from certain good hunting grounds. Smythe (1968: 247) notes that the North West Company men were "denying Fidler's men access to the buffalo country of the Peace River."

Meat produced by the three vertebrate classes at Nottingham House and the nearby post of Fort Wedderburn II (1817-18) is summarized in Table 9. At both posts mammals provided most of the meat according to the faunal evidence. However, the bone remains may not have given us an accurate picture of relative meat contribution. Data from travellers' narratives and post journals emphasize that fish, particularly whitefish, was the dietary staple of the Lake Athabasca fur trade settlements. Yet fish make up only 8.1 per cent of the meat at Nottingham House and 10 per cent at Fort Wedderburn II. Fish numbers at these two sites may be artificially low because of two main factors: poor bone preservation (especially of whitefish bones which are rather thin and

Table 9. Summary by Class of Faunal Remains from Fort Wedderburn II and Nottingham House*

	Fort Wedderburn II			Nottingham House		
	Bones	MNI	Meat (kg)	Bones	MNI	Meat (kg)
Fish	2251 (84.2%)	76 (74.5%)	103.5 (10%)	3558 (39.5%)	97 (45.3%)	142.3 (8.1%)
Birds	57 (2.1%)	12 (11.8%)	22.1 (2.1%)	2606 (28.9%)	70 (32.7%)	139.4 (7.9%)
Mammals	365 (13.7%)	14 (13.7%)	909.5 (87.9%)	2844 (31.6%)	47 (22.0%)	1482 (84.0%)
Totals	2673	102	1035.1	9008	214	1763.6

* One bone from Fort Wedderburn II and 351 bones from Nottingham House were assigned to "Class Uncertain" and are not included in this table.

fragile) and lowered recovery due to excavation techniques. At Nottingham House, clumps of rotted fish bone were noted during archaeological work but were too fragile for recovery. Also, since excavation methods at neither site included flotation or fine screening to any great extent, some fish bones were probably lost.

Whereas fish flesh totals may be low, the mammalian meat totals according to the bone remains may be artificially high. In the absence of evidence to the contrary, we assume that MNIs represent entire animals. However, in the case of large species such as moose, caribou, and bison only portions rather than whole carcasses may have been brought to the posts. Actual quantities of meat received may thus have been far less than indicated by bones and MNIs.

To add to the problem, dried meat and pemmican are known to have been utilized at Nottingham House, and these foods would have left no archaeological trace unless the animals were actually butchered at the house. Both were purchased from the Indians (Allen 1976a) at various times during the occupation. From the information contained in journal notes, it is impossible to estimate their actual dietary importance.

According to the Nottingham House journals (Allen 1976a), bear flesh was quite often bought from Indians. No bear bones were found at the site and therefore this large species cannot be included in the meat estimations.

No meat weight calculations were made for molluscs. The three clams recorded from the site would have contributed only a few grams of flesh to the meat totals.

The post's dependence on local rather than imported animal foods is emphasized by its provisions lists (Allen 1976b). Bacon was the only meat brought in with the yearly supplies. Diet at the post was predominantly flesh although a few turnips and potatoes were grown (Allen 1976a), and the post imported small quantities of basic foodstuffs such as flour, sweeteners, butter, various drinks, condiments and dried fruits (Allen 1976b).

Seasonal Food Procurement

Combined evidence from documentary sources and faunal remains allows us to construct a brief but informative picture of meat procurement at Nottingham House throughout the year. Autumn was a season of concentrated hunting and fishing, for supplies had to be laid in for the long winter ahead. The year's major fishing period began in September and continued to January or later. Any of the species recorded from the site could probably have been caught, but whitefish spawned in the fall and constituted the major portion of the catch. At this season, too, birds were massing for their final migration south and thus were present in large numbers. Ducks and geese were killed primarily in mid- or late September according to journal records (Allen 1976a); young bird bones present in the faunal remains also indicate autumn bird procurement. Species such as the whistling swan, various geese, and the rough-legged hawk would have occurred in the area only during spring or fall and must have been caught during those seasons. Although some mammal bones are immature, they are not useful for seasonality estimation. However, moose may have been taken during fall rut when they were easier to catch than at other times of the year. Allen (1976a) notes that half a moose was brought to the post on 19 October 1805.

During winter, fishing continued under the lake ice with species such as lake trout becoming more common in March (Krause 1972: 9). Burbot, a late winter spawner, may also have increased in availability then. Few birds were to be had. Migrant and breeding species were farther south, leaving only residents (spruce and sharp-tailed grouse, and the raven) and a winter-only species, the willow ptarmigan. Winter was the season for netting or snaring grouse and ptarmigan at fur posts (Richardson 1836: 507; Innis 1970: 132). Mammal pelts were prime during winter so that most trapping was done then; furbearers, especially the highly edible beaver, would have provided meat as well as furs at this season. Hares were often snared in winter when they could be tracked in the snow and were a winter food at many northern posts (Preble 1908: 201). At Nottingham House hares were hunted on Christmas Day, 1804 (Allen 1976a). Although the amount of meat each hare provided was small, in years when this species was abundant near a fur post it could be a vital protein source in the absence of other game. Artic foxes occurred in the area only in the cold months (October-April) and would have to be caught then.

Spring was welcome because it usually meant relief from winter privation. Goldeye, pike, sucker and walleye spawned in shallow water at this time and could have been fairly easily caught. Migrating birds returned beginning in late April, and in May and June many species bred in the delta. Geese and ducks were killed in May according to the house journals (Allen 1976a). Medullary bone found in marrow cavities of goose bones identified from the site also confirms goose hunting in spring. There is no evidence for intensive spring utilization of particular mammal species; the men must have killed whatever individuals they happened to find. Allen (1976a) noted that beaver, bear and moose meat were obtained from Indians on 15 April 1803, and that the house got bear meat from Indians also on 20 March of that year.

In summer the post's complement was much reduced, with most employees away on the annual voyages. The few that remained did some fishing (Krause 1972: 9-18) and probably hunted. The journals do not record any hunting activities in the vicinity of the post during June, July or August according to Allen (1976a). Remains of juvenile birds among the site bones do show, however, that birds were obtained at this season. Clams were probably collected in summer when the water was relatively warm.

Comments on Bone Distribution at the Site

Bones are seldom evenly distributed at an archaeological site and Nottingham House is no exception to the rule. The four borrow/trash pits contain the most bone (3848 pieces), particularly pits A-B (2281 pieces). Structure 1 also has a considerable quantity (3232 pieces) of faunal material. Much smaller amounts were found in the other structures, which were also smaller in areal extent.

Structures 3 and 4, the North West Company watch houses, show little to differentiate them from other parts of the site. Both contain five or six kinds of fish and five or six kinds of mammals, but structure 4 is much richer in bird species than structure 3 (Figure 1).

Looking at percentages of bones of each class found in the various features (Table 10), it can be seen that fish bones were particularly numerous in structure 1 and mammal remains quite scarce. Structure 2 shows just the opposite distribution with mammal first and fish third. Most of the other features contain proportionately larger quantities of mammal bone and lesser amounts of fish and bird, respectively.

Table 10. Percentage Composition of the Nottingham House Bone by Class (All Bone)

Feature	Str. 1 (Main House)	Str. 2 (Storehouse)	Str. 3 (north house)	Str. 4 (south house)	Pits A-B	Pit C	Pit D	Test pits
Fish	50.8	25.1	33.0	27.6	40.2	26.0	23.4	26.7
Bird	31.0	25.2	34.5	23.0	33.4	20.4	14.1	27.5
Mammal	14.8	46.6	31.0	40.5	23.6	53.6	59.2	37.1
Class Uncertain	3.4	3.1	1.5	8.9	2.8	-	3.3	8.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Bones	3232	674	336	819	2281	308	1259	450

Within the main house the largest number of bones and species occurs in Room D and the smallest in Room A, with Rooms B and C being intermediate (Tables 3,4,7). This distribution is consistent with the hypothesis that Room A was Peter Fidler's chamber and Room D the men's quarters. The two central rooms are identified as a warehouse and trading room/kitchen, respectively, but the faunal remains produced no evidence for these functions. Most of the mammals found in the main house were common food species with the exception of a few bones of dog, dog/wolf, red fox and lynx. Remains of "non-edible" species primarily valued for their fur were more numerous in other parts of the site, particularly the storehouse and pits A-D which contained bones of dog/wolf, red and Arctic foxes, marten, wolverine and lynx.

Data on faunal composition of pits and other types of depressions are given in Tables 2 and 11. Considering for a moment only the pits, obviously the large pit in Room D of the main house contained more than twice as many bones as any other pit. This pit held a large percentage of bird bones (46.5% of pit contents), most of which were from geese. The lesser pit in the same room contained less bird bone but still a fairly high percentage (33.9%). The pit in Room C held only 40 fragments, mostly walleye. The pit in Room B yielded some fish and bird remains but only a few mammal fragments. Two pits (C and D) located outside the main house contained much more mammal bone (50.0% and 50.9%, respectively) than interior pits. The faunal material in the storehouse cellar also consisted mostly of mammal bone. In addition to the pits, the main house contained a cellar. Although this cellar had a high percentage of mammal bone, resembling outside rather than interior pits, only 31 bones were found including several artifacts. Thus the percentages from this depression are probably not comparable to the other figures.

Pits A-B contained more bone than any of the other depressions. Their contents consisted of a great variety of fish and bird species, with fewer mammal bones and species. Many walleye and goose remains were found in the pits as well as most of the site's hare bones and 18 wolverine bones. A low percentage of mammal bones occurred in pits A-B in contrast to the area around them which contained a high percentage of mammal bones (Table 11).

Pits A-B and the large sub-floor pit in Room D contained major accumulations of bone. While such a concentration is understandable in the former features, they having been interpreted as trash receptacles by the archaeologist, it is not in the case of the interior pit believed to have been used for storage. Possibly the function of the interior pit changed when it became known the post was to be abandoned.

It is always interesting in zooarchaeological analyses to investigate whether depressions such as pits and cellars have allowed differential preservation of bone. Presumably fragile remains of fish and birds would have a much greater chance of being preserved in a depression than on a living surface. Comparison (Table 11) of bones from occupation surfaces of the main house and the refuse pit area to the south of it shows a wide variation between the two in amounts of fish and mammal bone they contain and the various pits show the same sort of variation. Since one class of bone is not consistently more common then the other, there is no direct evidence for differential preservation. When bones from depressions are

Table 11. Percentage Bone Composition by Class in Pits and Cellars Compared with Percentages in the Main House and the Trash Pit Area

	Fish	Bird	Mammal	Class Uncertain	Per Cent Total	Total Bone
Main House						
Room A - cellar	12.9	22.6	64.5	-	100.0	31
Room B - pit	41.4	40.8	16.4	1.3	99.9	152
Room C - pit	80.0	5.0	15.0	-	100.0	40
Room D - large pit	44.0	46.5	6.4	3.1	100.0	1248
Room D - small pit	47.0	33.9	13.6	5.5	100.0	345
Storehouse						
Cellar	6.5	13.0	75.6	4.9	100.0	123
Trash Pits						
Pits A-B	42.7	37.7	16.6	3.0	100.0	1822
Pit C	32.6	17.4	50.0	-	100.0	89
Pit D	31.8	15.0	50.9	2.3	100.0	487
Main House (*)	61.8	14.4	20.1	3.7	100.0	1312
Trash Pit Area (+)	22.2	15.0	60.1	2.8	100.0	1348

* Interior of the main house excluding pits and cellar.
+ Trash pit area excluding pits.

compared with total site bone, 51.1 per cent of fish, 60.8 per cent of bird and 32.2 per cent of mammal bone occurred in the holes. This might indicate that bird bones persist better when discarded into depressions, but could also denote selective deposition of bird bones in pits rather than on the surface. Neither hypothesis can be proved at this site. What Table 11 does seem to show is that a smaller proportion of mammal bones was discarded inside the main house than outside. Both the exterior pits and the area immediately adjacent to them contain 50 per cent or more mammal bone, whereas the inside pits and the living surface of the house contain 20.1 per cent or less (except for the atypical Room A cellar). Nineteenth-century hygiene being what it was, the men of the post may have tossed bird and fish bones on the floor or into nearby pits. The larger mammal bones might have been collected for disposal outside or as dog food.

at the western end of Lake Athabasca, about 20 miles apart. Occupation of Nottingham House spans four years (1802-1806), but Fort Wedderburn II existed for only a short period - October 1817 through March 1818. Nevertheless, these two posts should exhibit many similarities since they both (1) belonged to the same company, (2) are temporally close together and (3) tapped the same resource base.

Fort Wedderburn II is the smaller site and produced bones of six species of fish, eight of birds and ten of mammals in contrast to Nottingham House's 7 fish, 19 bird and 14 or 15 mammal species. Fish ranked first in number of bones and MNI at both sites but at Wedderburn fish were relatively more important. Birds were a minor component of the faunal remains at Fort Wedderburn but were quite important at Nottingham House. At the House fish and birds each contributed about 7.5 per cent of the edible meat whereas at Fort Wedderburn II fish provided 10 per cent and birds only about 2 per cent of the meat. At both sites mammals accounted for over four-fifths of the edible meat (Table 9).

Figures 2 and 3 provide a graphic comparison between the faunas of the two sites. Although MNIs are lower at Wedderburn, the two curves show general similarities. Walleye, whitefish, and pike were the most important species at both posts.

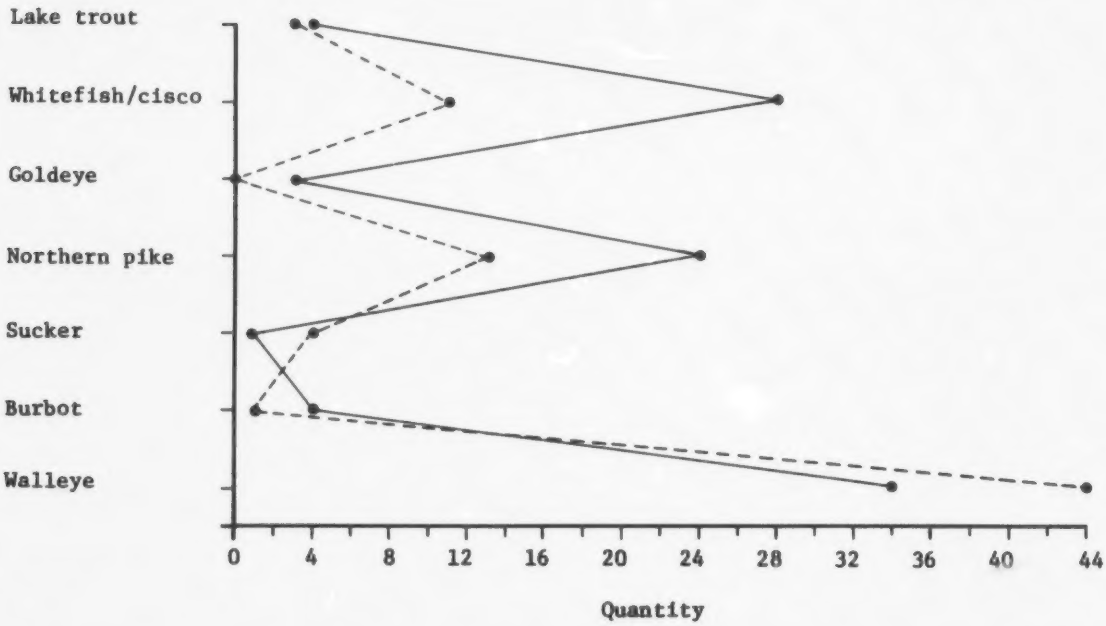

Figure 2. Numbers of individual fish in the faunal remains from Nottingham House (solid line) and Fort Wedderburn II (dashed line). (Drawing by S. Epps.)

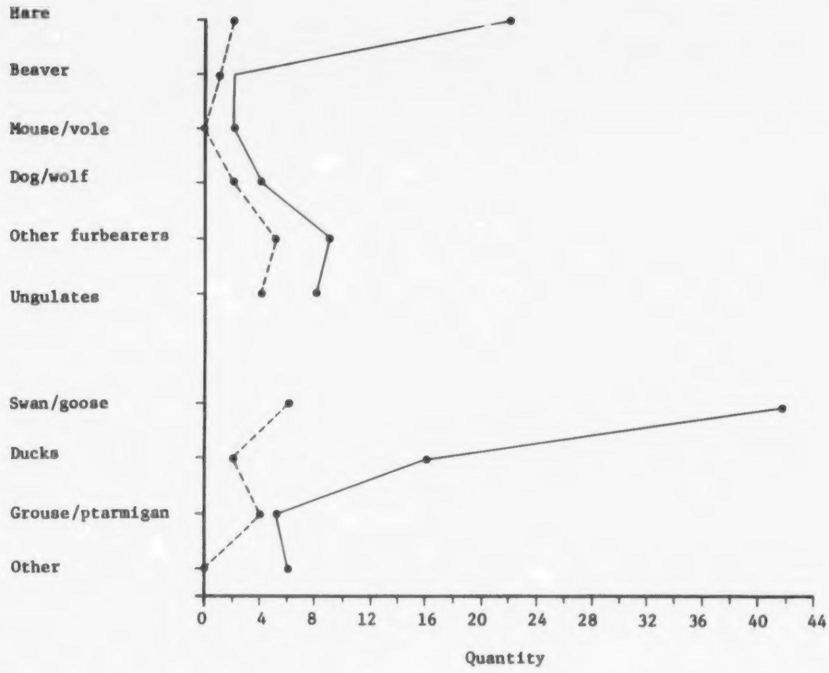

Figure 3. Numbers of individual mammals and birds in the faunal remains from Nottingham House (solid line) and Fort Wedderburn II (dashed line). (Drawing by S. Epps.)

The plotted MNI distributions for birds and mammals show less agreement (Figure 3). A higher proportion of hares was taken at Nottingham House. Geese and ducks were dominant at the House and grouse and ptarmigan were relatively unimportant, while at the Fort the grouse/ptarmigan group was second in abundance to geese. Since the Fort was a winter site in contrast to Nottingham House's four years of continuous occupation, one might expect the Fort to have fairly high proportions of hares, grouse and ptarmigan relative to other species since these forms were all typically hunted in winter. Although grouse and ptarmigan rank second in MNI at Fort Wedderburn II, hares were scarce at that site. The large number of geese and ducks at Nottingham House is to be expected considering the vast quantities of these birds available during spring and fall.

Problems for Further Study

Analysis of faunal remains from Nottingham House and Fort Wedderburn II on Lake Athabasca has provided interesting new information as well as providing substantiation for food-related comments in journals and travel books of the period. Two further lines of study have been suggested by these analyses and are discussed below.

The place of fish in the Athabasca foodways pattern is not yet clear. Although we know that fish were exceedingly important to these early fur trade posts, the position of fish relative to other types of meat is uncertain. Results of faunal analyses indicate that fish played a rather minor role in terms of meat yield, while documentary sources give the impression that they were the dietary staple. Since faunal results are easily altered by methods of archaeological recovery, this excavation parameter should be investigated. Perhaps future excavations of fur posts should include fine screening and flotation to ensure that many small fish bones are not lost. Differential preservation of bone should also be investigated.

The second problem revolves around the dietary contribution of boneless or partly boned meat (dried meat, pemmican, boned and preserved meat, etc.). Although these foods leave no archaeological trace, it may be possible to make some conclusions about their use. Using extensive documentary research combined with analysis of sites rich in animal remains (such as Nottingham House), one might be able to get a better picture of how accurately the bones reflect actual subsistence patterns. Models for future analyses might then be developed.

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APPENDIX C. INVENTORY OF 20TH-CENTURY ARTIFACTS RECOVERED FROM THE NOTTINGHAM HOUSE SITE (Provenience Data is in Parentheses)

Personal Items
Cloth fragments (6A1, 6B1)
Small metal buckle (1N1)
Shoe remnants (1N1)
Clothing snap (3H2)
Glass embroidery beads (general site area)
Perry Davis Painkiller bottles (1B1, 3D1)
Medicine bottle cork with wire loop (3G2)
Slotted coffee can lid (from a homemade piggy bank ?; 5A1)

Domestic Items
Table knife marked "ALEX FRASER & CO., SHEFFIELD" (1D1)
Steel egg lifter handle (3A1)
White earthenware plate rim fragment (3C4)
Sundry soft drink bottles (general site area)
Rectangular clear glass bottle fragments (5A1)
Glass jars (general site area)
Tin cans (general site area)
Aluminum foil (3J1)
Wall mirror fragments (6A1, 6B1)
Flashlight batteries (3J1)
Paraffin lump (2B2)
Dog chain (general site area)

Subsistence and Defence
Deformed conical lead bullet (1H4)
Brass shotgun shell bases marked "DOMINION NO. 12 SOVEREIGN" (3D2, 3G2)
Rat-tail hunting knife blade marked "ERIK FROST MORA SWEDEN" (3A1)

Tools and Hardware
Left-hand canoe knife made from a file; markings present but indistinguishable (5C1)
4 3/4-in. wire nail (3G2)

Transportation
Aluminum alloy outboard motor component (5A1)

Miscellaneous
Ferrous metal bands with round nail holes (4D2)

APPENDIX D. GOODS CREDITED TO SERVANTS AT NOTTINGHAM HOUSE, 1802-1805. (Extracted from the Nottingham House journals: HBCA, B.39/a/2, fol. 65-68; B.39/a/5b, fol. 63, 76-79, 94; the brackets contain each individuals occupation, seasonal pay in pounds and place of origin, respectively, as recorded by Peter Fidler in 1802: HBCA, B.39/a/2, fol. 60-2).

Mens' Debts, 1802-1803

General

Blankets of 2-1/2 pt	no.	2	
3		2	
Cloth green cord	yds.	1/2	
Duffle		1-3/4	
Kettle copper of 1-1/2 gal.	no.	1	
Tobacco Spencers twist	lbs.	9-1/2	

Mens' Debts, 1803-1804

Alex. Bersten [steersman, 20, Ronaldshay]

Cloth blue plain	yds.	1	
do.		1/2	

George Cumerty [tailor, 12, Deerness]

Tobacco roll	lbs.	3	(Gave him for repairing nets pr.)
Soap		2	
Sugar loaf		2	
brown		4	
Shirt flannel	no.	1	
cotton		1	
Blanket large	no.	1	
Duffle	yds.	1/2	
White jacket	no.	1	
Needles		12	(gave him)
Brandy high	gal.	1	
Tobacco roll	lbs.	1	
Cloth blue (Mar. 14)	yds.	1/4	

Wm. Dunnett [boatman, ?, Ronaldshay]

Cloth blue plain	yds.	1-1/2	(card. to next years acct.)
Do.		3/4	
green cord		1	
Hat common		1	

Robert Flett [boatman, 8, Orphir]

Cloth blue plain	yds.	1-1/8	
Blanket large	no.	1	
Tobacco roll	lbs.	3-7/8	
Shirt cotton	no.	2	
Trousers duck	pr.	1	

Sugar loaf	lbs.	2	
brown		4	
Frock duck	no.	1	
Comb ivory		1	
horn large		1	
Brandy high	qts.	2	

Robert Garrick [labourer, 18 or 25, Orphir]

Cloth blue plain	yds.	2
Blanket large	no.	1
Tobacco roll	lbs.	3-1/2
cutt		1
Waistcoat white	no.	1
Shirt flannel		1
cotton		1
Trousers duck	pr.	1
Sugar loaf	lbs.	4
brown		6
Duffle	yds.	3/4
Comb large	no.	1
ivory		1
Needles glover		12
Brandy high	gal.	3/4

Thomas Goucher [steersman, 16, Ronaldshay]

Cloth blue plain	yds.	1-1/4	(pd in furs)
Brandy double	pts.	1	
Do.		3	

James Kirkness [labourer, 2@10 & 1@12, Harry]

Cloth blue plain	yds.	1-1/8
Flannel		6
Shirts cotton	no.	2
Sugar loaf	lbs.	4
brown		6
Paper writing plain	qui.	1
Frock	no.	1
Duffle	yds.	1/2
Cloth		1/2
Tobacco roll	lbs.	1
Brandy high	gal.	1

James Ross [boatman, 2@14 & 1@15, Burray]

Gartering	yds.	4	(Due 6 beaver)
Handkerchief soosee	no.	1	
Blanket 1-1/2 pt.		1	
recd from him 1/2 yd cloth			
Blanket 1-1/2 pt.		1	6. MBr
Handkerchief silk large		1	
soosee		1	
Twine fine	ska.	1-1/2	

John Stephen [?]

Tobacco cutt	lbs.	1
Cloth blue	yds.	1-1/4
Shirt flannel	no.	1
cotton		1
Sugar loaf	lbs.	2
brown		4

Wm. Tomison [boatman, 12, Ronaldshay]

Shirt flannel	no.	1
Twine fine	ska.	1
Needles glover	no.	12
Sugar loaf	lbs.	1
brown		1
Blanket large	no.	1
Jacket white		1

Goods Credited to Servants, 1804-1805

Edward Brown [boatman, 8, Ronaldshay]

Tobacco roll	lbs.	3-1/4
Glass looking black (Apl. 20th)	no.	1
Hat common (May 10)		1

William Dunnett [boatman, ?, Ronaldshay]

Tobacco roll	lbs.	8-9/10
Blanket of 2 pt.	no.	1
of 3		1
large		3
Cloth green cord	yds.	1-3/4
plain		4
red do.		1/4
Brandy high	gal.	7/16
Pan tin	no.	1
Handkerchief soosee		1
silk large		1
small		1
Glass burning	no.	1
Gartering	yds.	10
Trousers duck	pr.	1
Shirts cotton	no.	3
youth		2
boys		2
Twine	ska.	1
Frock duck	no.	1
Sugar loaf	lbs.	4
moist		10
Cloth blue corded	yds.	1-1/8
plain (May 20, 1804)		2-1/4
green corded		1
Hat common	no.	1
Brandy high (Nov. 12)	qts.	2
Tobacco roll (Dec. 10)	lbs.	3
Paid in furs		
Cloth blue cord (Feby. 16)	yds.	1-1/2

Tobacco roll	lbs.	5
Blanket 2-1/2 pts. (May 12, 1805)	no.	1
Brandy high	qts.	1

Robert Flett [boatman, 8, Orphir]

Jacket white	no.	1
Glasses looking		1
Tobacco roll	lbs.	7
Cloth blue plain	yds.	1-1/2
Brandy double	gal.	1
Blanket of 3 pt. (1805)	no.	1
Tobacco roll (20 Jany.)	lbs.	3
Brandy (23 April)	gal.	1/2
Trousers duck	pr.	1

Paid per fishing

James Kirkness [labourer, 2@10 & 1@12, Harray]

Shirts cotton	no.	2
Sugar moist	lbs.	6
Cloth	yds.	1-1/2
Brandy high	gal.	1/4
Tobacco	lbs.	1-1/2
Cloth	yds.	1/2
Handkerchief linen	no.	1
Cloth green plain	yds.	1-5/8
Knife dessert	no.	1
Trousers cotton	pr.	1

Magnus Louttit [tailor, 10, Rendall]

Tobacco roll	lbs.	3-3/4

James Merrowick [bowsman, 14, Harray]

Tobacco roll	lbs.	3
Trousers cotton	pr.	1

John Ross [boatman, ?, Burray]

Handkerchief soosee	no.	1
Knife butcher		1
Buttons waistcoat	doz.	1-1/2
Cloth red cord	yds.	1/4
Tobacco	lbs.	14
Jacket white	no.	1
Brandy high	gal.	1/8
Comb horn	no.	1
ivory		1
Sugar moist	lbs.	6
Shirts cotton	no.	2
Trousers duck	pr.	1
Cloth green plain	yds.	1-1/2
blue do.		1-1/4
Twine	ska.	1
Blanket of 3 pt.	no.	1
Brandy high (Dec. 29)	qts.	1
Tobacco roll (1805 Feby. 23d)	lbs.	5
Cloth red corded	yds.	3/4

John Wars [?]

Tobacco roll (16 Jy 1805)	lbs.	2
Do.		3

Mens' Debts, 13th Feb. 1805

Edward Brown [boatman, 8, Ronaldshay]

Cloth red cord	yds.	3/4

William Corrigal [boatman, 8, Harray]

Brandy double	pts.	3
Sugar moist	lbs.	5
Glass black looking	no.	1
Comb horn large		1
Soap	lbs.	1
Salt		1

John Davey [?]

Shirt cotton (17 March)	no.	1 (for furs)
Tobacco	lbs.	2

Magnus Duncan [labourer, 8, Ronaldshay]

Cloth blue cord (1805 Nov. 4th)	yds.	5/8
Tobacco (May 14th)	lbs.	2

Hugh Gibson [boatman, 8, Rousay]

Cloth green cord	yds.	1/2
Moose leather skin	no.	1 (given)

Wm. Harper [?]

Tobacco roll (Dec. 12)	lbs.	2
Twine (Mar. 13)	ska.	1
Tobacco (Apr. 4)	lbs.	2

James Kirkness [labourer, 2@10 & 1@12, Harray]

Tobacco	lbs.	3

Magnus Louttit [tailor, 10, Rendall]

Brandy double	pts.	1
Blanket large	no.	1
Tobacco roll	lbs.	3
Knives comn. clasp	no.	2
two blades		1
Sugar moist	lbs.	5
Comb ivory	no.	1
Soap	lbs.	1/2
Brandy high (Oct. 29)	qts.	1
Cloth green cord (Nov. 30)	yds.	5/8
Tobacco roll (Jay. 24)	lbs.	2
Tobacco (11 Apr.)		2

Jas. Merrowick [bowsman, 14, Harray]

Cloth (Dec. 14)	yds.	5/8
Silk handkerchief large	no.	1
Tobacco (Feb. 19)	lbs.	3
Cloth (Apr. 11)	yds.	1/2

John Walls [labourer, 8, Ronaldshay]

Sugar moist	lbs.	3
Blanket large	no.	1
Trousers duck	pr.	1
Tobacco roll	lbs.	3
Flannel	yds.	4
Knife comn. clasp	no.	1
Comb horn		1
ivory		1
Soap	lbs.	1-1/2
Spirits (Dec. 4th)	qts.	1
Tobacco roll (Jany. 31)	lbs.	2

Undecipherable

Tobacco	lbs.	2

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PETER FIDLER AND NOTTINGHAM HOUSE, LAKE ATHABASCA, 1802-1806

Robert S. Allen

284 Abstract
285 The Years Before
303 Nottingham House, Lake Athabasca, 1802-1806
310 The Years After
324 Appendix A. The Fisheries at Nottingham House, 1802-1806: A Brief Look
329 Appendix B. Inventory of Trading Goods at Nottingham House, 1803
330 Appendix C. Inventory of House, Cooper, Carpenter's Stores, etc., at Nottingham House, 1803
331 Endnotes
342 Bibliography

ABSTRACT

By 1802 the long and intense fur trade rivalry between the Hudson's Bay Company and the North West Company had focused on the rich beaver country of the Chipewyan Indians in the Lake Athabasca region. In that year, Peter Fidler, the chief surveyor of the Hudson's Bay Company, and an experienced traveller, trader and cartographer, was despatched with a small contingent of men to this key trading area where he built Nottingham House on English Island. Although stubbornly remaining for four years, the Hudson's Bay Company was unable to compete successfully against the North West Company who had been established in the area since 1788. Badly outnumbered, harassed and intimidated by his competitors, Fidler abandoned Nottingham House. June 1806 was the nadir of his fur trade career, nonetheless Peter Fidler remained prominent in the activities of the Hudson's Bay Company until his death in 1822.

Submitted for publication 1977, by Robert S. Allen, National Historic Parks and Sites Branch, Parks Canada, Ottawa.

THE YEARS BEFORE

Since the granting of the Royal Charter in 1670 to The Governor and Company of Adventurers of England trading into Hudson Bay, the Hudson's Bay Company seemed content with "sleeping at the edge of a frozen sea,"[1] as scant interest was demonstrated in awakening to the potential of the inland trade. Under the terms of the charter, the company was granted "the Sole Trade and Commerce of all those Seas Streightes Bayes Rivers Lakes Creekes and Soundes..." which flowed into Hudson Bay, together with all lands in that vast unknown area not "already possessed by or granted to any of our Subjectes or possessed by the Subjectes of any other Christian Prince or State."[2] This domain, called Rupert's Land, was to be "One of our Plantations or Colonies in America."[3] By these generous terms, the company not only enjoyed a monopoly of the fur trade in these territories, but could penetrate by water and land deeply into the interior, provided the trade went through Hudson Bay. The dream, if not the expectation, of the company's governing body was that through exploration and discovery an accessible route across the continent, a Northwest Passage, to the Pacific and the markets of China and the Far East could be achieved.[4] Yet for the first 100 years, the company ignored the potential of the vast and beckoning untapped interior and confined itself to establishing trading factories on the coast of Hudson Bay and James Bay. As a result, the Indians developed an intricate system of inter-tribal trading in which the distant interior tribes traded through middle-men who became conditioned to bringing the furs to the factories at the bay. The company was thus spared not only the costs and labour of inland transportation, but the expense of exploration ventures.

The travels of Henry Kelsey and Anthony Henday represented two notable exceptions by the Hudson's Bay Company to the missed opportunity of extending their trade and consolidating their influence among the Indian tribes of the interior. Yet even these ventures had limited objectives. In 1690 Kelsey was sent to explore the interior country where he became the first known European to view the great central plains of Canada, as well as to see the grizzly bear and vast herds of buffalo. But his specific instructions were "to invite the remoter Indians to a trade with us."[5] This was to be achieved by pacifying the Indians who were engaged continually in inter-tribal warfare, so that "they may have the more Time to look after their Trade (hunt beaver), and bring a larger Quantity of Furs, and other Trade, with them to the Factory;...."[6] Kelsey's mission was only partially successful. The plains Indians, not yet having acquired the horse, "knew not ye use of Canoes,"[7] and were reluctant to undertake a long and arduous journey to trade at the Bay. In addition, the middle-men Indians, and particularly the Cree, jealously guarded their profitable position in the trading system, and prevented the distant tribes from passing through their territory to the Hudson's Bay Company factories.

The journey of Anthony Henday in 1754-55, like that of Kelsey before him, was a remarkable adventure of daring and fortitude. He travelled by canoe from York Factory to within sight of the Rocky Mountains in Blackfoot territory, and back. His vivid and detailed journal, and particularly his observations of Blackfoot life and customs, and his winter among them, remain invaluable historical documents. Yet his instructions were also specific, as he was not only "to Explore the Country Inland," but "to Endeavour to Increase the Hudson's Bay Company's Trade...,"[8] which had declined as a result of French competition. Indeed the French were innovative and enterprising in successfully establishing interior posts, and in living among the Indians and trading at their villages during the winter. Henday noted with some concern that the "French talk several [Indian] languages to perfection...," and if they had a better assortment of trade goods, such as "Brazil Tobacco... they would entirely cut off our trade."[9] Nonetheless, and as ordered, Henday merely tried to persuade the plains Indians to trek to the Hudson's Bay Company factories, and to encourage the middle-men to trap and trade more extensively. But the Indian attitude had changed little since the days of Kelsey, and the Blackfoot declined a long canoe trip which entailed a diet primarily of fish, a most unpalatable food to them in comparison to buffalo meat. As well, the middle-men wished to maintain the status quo, and expressed hostility to the idea of direct trade with the Blackfoot.[10] The travels and observations of Henday did result, however, in a major policy change for the Hudson's Bay Company which decided to establish posts in the interior in the manner of the French. But the new plan languished with the outbreak of war between France and England in North America, as the conflict crippled the French fur trade in the northwest.

The Peace of Paris in 1763 terminated the imperial influence of France in North America, but the elimination of the French fur trade competition did not result in a peaceful and unopposed monopoly for the Hudson's Bay Company in Rupert's Land. Based at Montreal, British and American colonial traders, and knowledgeable French Canadian voyageurs of the Old Regime who re-aligned themselves with these "Pedlars," flagrantly ignored the new restrictive "Plan for the Regulation of the Fur Trade" and the Royal Charter, and aggressively pushed their trade into the northwest. The Pedlars adopted the traditional French practice of establishing interior posts and winter camps among the Indians.[11] The Hudson's Bay Company fur trade monopoly was thus usurped, as the Indians were intercepted en route to the bay by the Pedlars who gathered immense quantities of illegal furs. Alexander Henry, a recent survivor of the Michilimackinac massacre during the so-called Pontiac War, and his partner Jean Baptiste Cadotte, were particularly successful, as they accumulated 1500 pounds of furs; and in 1767 over 100 canoes laden with beaver pelts from the northwest arrived at Grand Portage and Michilimackinac.[12]

The success of the Pedlars finally awakened the Hudson's Bay Company from their long slumber by the frozen bay where they had traditionally enjoyed a comfortable and profitable monopoly of the fur trade, in spite of periodic French intrusions. At Churchill and York Factory trade had dropped from 31,000 skins in 1767 to a mere 18,000 in 1768.[13] In addition, the interior trade of the Pedlars was not only continuing unabated and unopposed, but was in fact expanding. Clearly, if the Hudson's Bay Company was to survive and regain the lost trade, they must "Collect it inland after the Canadian manner."[14] No longer could the Hudson's Bay Company rest content along the shores of Hudson Bay. The imperative now was to strike boldly into the interior and combat the Canadian traders from Montreal.

The journey of Matthew Cocking from "York Factory to the Blackfeet Country" in 1772-73, and his incisive journal report advocating the establishment of an interior post, was a final inducement in convincing the London Committee of the Hudson's Bay Company, who had long considered such a proposal, that such a move was now vitally necessary. Initially Cocking was instructed "to Take a View of the Inland Country, and to Promote the Hudson's Bay Company's Interest, Whose Trade is Diminishing by the Canadians Yearly Intercepting Natives on their Way to the Settlements" at the bay.[15] Cocking attempted to dissuade the far western Indians from trading with the Pedlars and suggested instead that they bring their furs to the bay. But his efforts were no more successful than those of Kelsey, Henday and others before him, as the Indians were still "unacquainted with the method of building Canoes and paddling:...," and refused to undertake a long and unnecessary journey.[16] These negative responses to his overtures convinced Cocking that the only solution in combating the fur trade rivalry of the Pedlars was to organize an expedition into the interior, and establish a permanent trading post. His "Thoughts on making a Settlement Inland"[17] had already been anticipated by the London Committee of the Hudson's Bay Company, and in 1774 Samuel Hearne, who had recently returned from an epic journey across the barrens to the "Northern Ocean," was sent to the upper Saskatchewan River where he established Cumberland House. This action produced a direct, overt and immediate confrontation with the Pedlars and initiated a long and bitter rivalry between the bay and the St. Lawrence commercial interests.

The struggle for the inland trade initially presented grave problems for the Hudson's Bay Company in the form of transportation disadvantages, labour discontent and war. The most urgent problem was the lack of white birch and cedar which did not grow in the dreary and cold northern country along the western shore of Hudson Bay.[18] Without birch bark and cedar frames, canoes, absolutely necessary for transporting goods into the interior, could not be made. The Pedlars and the Montreal commercial interests along the St. Lawrence, however, had an almost unlimited supply of birch and cedar, and a canoe-building industry had developed at Trois Rivières, and later at the Island of St. Joseph.[19] The Montreal merchants made effective use of the skilled voyageur and the large and well-designed "canot-du-maître" to transport their trade goods to the northwest interior via the long Ottawa River-Lake Nipissing-French River route to Grand Portage.

From this rendezvous site, the voyageurs or "hommes-du-nord" struck into the interior with a smaller canot-du-nord, equipped with trade goods, rum and a food staple of pemmican which became common about the mid-1770's.[20] This food source, vital in the fur trade, consisted of buffalo "beat meat" thoroughly blended with fat; "to cut the grease" berries or maple sugar were often added. The mixture was then poured into 90-pound buffalo hide bags called "taureaux" for long and safe storage, and for easy canoe travel. Pemmican could be chewed with difficulty in its natural state, or boiled with flour and water to make a nutritious soup-stew called "rubbaboo."[21] The food was nourishing and easily stored, and "even the gluttonous french canadian that devours eight pounds of fresh meat every day is contented with one and a half pounds per day."[22] Thus based at Montreal and Grand Portage, and after 1803 at Fort William, these rivals of the Hudson's Bay Company, using the French Canadian voyageur, the light and portable birch-bark canoe and a staple food source of pemmican, initially possessed a considerable advantage over the company in terms of canoe transportation. However, transportation costs were becoming increasingly expensive for the developing Montreal consortium as the distances grew with each additional probe farther into the interior. The shorter bay route was decidedly cheaper; and in time the greater distances and costs, compounded by export duties on goods shipped through Canada via the St. Lawrence route which the Hudson's Bay Company were not required to pay going through the bay, eventually produced a calamitous economic hardship on the Montreal commercial interests.[23]

In addition to the unavailability of canoes, the new inland policy of the Hudson's Bay Company was retarded for a while by labour discontent among the company's servants who became disgruntled at the prospects of leaving the reasonable comforts of the traditional trade at the bay factories for the hardships and isolation of the interior trade. The main source of European labour for the company was the Orkney Islands of northern Scotland. The islands were extremely poor, and young men with few prospects of a life above the subsistence level found employment with Hudson's Bay Company an attractive alternative, in spite of the bitterly cold northern winters and prolonged absences from their beloved island homelands.[24] The Orkneymen (Orcadians) were well suited for a rough, Spartan existence in the harsh climate of the north. They were used to the vigours and cold of the northern seas where whaling, the Greenland and Iceland fisheries, as well as the Royal Navy, provided employment outlets.[25] Orkneymen were proud of their heritage, and especially their Norse-Scottish mixture[26] which gave them a hardy, physical resilience, along with a stubborn, yet industrious dependability. The Hudson's Bay Company began their association with the Orkney Islands about 1702 when the captain of the *Hudson's Bay* was instructed to call at the Orkney's and enlist 10 or 12 servants, lusty young men for service in the company. By the 1740s, Hudson's Bay Company ships were visiting the islands regularly, and each summer between 50 and 100 men departed Stromness for Hudson Bay where they were engaged in such roles as labourers, tailors, boatbuilders, bricklayers and craftmasters.[27] This arrangement was so successful, and mutually satisfactory, that by 1799 of the 530 persons employed by the company in Rupert's Land, 416 or 78 per cent were Orkneymen.[28]

Life at the bay factories was more than tolerable by Orkney standards, as the men were provided with permanent quarters and regular rations of meat, fish, fowl, local vegetable produce and imported oatmeal which suited their particular palate.[29] As well, although not possessing the boisterous character and "joie de vivre" of the French voyageur, the Orkneymen made steady social progress with Indian maidens generally. Many of these relationships became permanent, and a large number of the Orkneymen remained in the northwest with their Indian wives and children upon retirement.[30] Although cautioned not to "Forget [their] Duty to God,"[31] other lusty young Orkneymen, especially at the later inland posts, preferred the more temporary and frequent marriages "à la façon du pays." In fact, these usually dour Scots showed such an uncharacteristic zeal for indiscriminate physical friendships with Indian concubines that they all too frequently became unfit for duty, as they were uncomfortably "lying in with a venereal complaint."[32]

Contented with the familiar comforts and conveniences at the bay factories, the Orkneymen naturally viewed the new inland service with suspicion and distaste. A sense of injustice was also felt because there was no pay difference between service at the bay and in the harsh and unfamiliar interior. Nonetheless, and as ordered, the Orkneymen reluctantly accompanied their spirited leader Samuel Hearne to the Saskatchewan River where Cumberland House was built.[33] Morale was low, however, and obedience sulky, and Hearne lamented that "the People have not got the prosperity of the Expedition at heart."[34] Indeed, the Orkneymen at first showed no spirit in competing against their Pedlar rivals, nor any inclination to understand or familiarize themselves with the canoe or wilderness life. This recalcitrant attitude made any effective fur trade competition in the interior initially most difficult. Yet, the Orkneymen adapted and developed an expertise in all aspects of life at an interior post. In time their initiative in developing a better system of transportation through the use of the heavy York boats, and their special abilities as gardeners and fishermen, resulted in a more equal contest in the rivalry of the northwest fur trade.

Along with transportation difficulties and labour discontent, the outbreak of the American Revolution a year after the establishment of Cumberland House represented a third plaguing problem which slowed the development of the Hudson's Bay Company inland policy. The war produced a labour shortage and reduced the usually steady supply of trade goods and supplies to Hudson's Bay. However, the capture of Montreal and the long siege of Quebec by the colonial rebels, who were not expelled from Canada until May-June 1776, had an even more disastrous trade effect on the Pedlars and Montreal commercial interests. But by 1778 the enterprising Connecticut Yankee and Pedlar, Peter Pond, found a convenient route to Lake Athabasca through the Methy Portage. The Athabasca, "a country hitherto unknown but from Indian report,"[35] was the richest fur-bearing region in the northwest, and Pond became the first man of European origin to take trade goods to the local Chipewyan Indians who traditionally travelled to barter at Hudson's Bay. He built a small post south of the lake which became known as Pond's House or the Old Establishment.[36] The achievement of Pond in penetrating the Athabasca, coupled with the formation of the North West Company, a general partnership of Pedlars and Montreal business interests in 1779 which was reformed in 1784 and again in 1787 into a stronger coalition, produced a more dangerous and now united competitor which seriously threatened the profits and status of the Hudson's Bay Company in the northwest fur trade.

Although the Athabasca success of Peter Pond in 1778 and the formation of the North West Company in 1779 were serious setbacks to the expansionist ambitions of the Hudson's Bay Company, two further calamitous blows during the war years ensured, for the moment, the failure of their new inland economic policy. The outbreak of the "Plaguey Disorder," or Smallpox epidemic of 1781-82, which swept unmercifully through the northwest and nearly annihilated the Indian population who had no immunity, was a disaster of unprecedented proportions in North America. The Hudson's Bay Company master at Hudson House reported that "the Small Pox is raging all round Us with great Violence, sparing very few that takes it...;" and, "the Indians [are] lying dead about the Barren Ground like Rotten Sheep, their Tents left standing and the Wild Beasts devouring them."[37] Many traders of both rival companies merely viewed the ravages of the disease as "very detrimental to Our Affairs,"[38] and as a disappointing encumbrance to the continuation of profits. Although the trade in furs ceased significantly for a time, the stricken tribes gradually recovered, and the fur trade was revived.

Added to the appalling human tragedy was the military destruction of the Hudson's Bay Company factories of Fort Prince of Wales at Churchill and York Fort by the French under the Comte de La Pérouse in August 1782. In spite of the surrender of the British general Charles Cornwallis at Yorktown, Virginia, the year before, fighting continued in several areas. For instance, in the Windward Islands off Dominica in the eastern Caribbean, the British under Sir George Rodney defeated a part of the French naval fleet at the Battle of the Saints in April 1782. Yet French pride, the desire to avenge their dashed hopes of regaining islands in the West Indies and their earlier loss of Canada, prompted a final blow against British interests. The attack against the Hudson's Bay Company factories in Hudson Bay was the successful result. Churchill surrendered "without making any resistance,"[39] and the wooden post of York Fort was even less defencible. The greatest damage for the British and the Hudson's Bay Company, however, was their loss of prestige among the Indians.[40] Thus, within a decade after the introduction of their new inland policy with Cumberland House, the Hudson's Bay Company suffered through the problems of transportation disadvantages, especially the unavailability of birch and cedar for canoes, the discontent of their Orkney servants, a terrible epidemic and a colonial rebellion to the south which finally reached the shores of Hudson Bay with humiliating effects for the company. Clearly, their initial hopes and aspirations for a competitive rivalry in the interior against the North West Company were for the moment impracticable.

Yet the Hudson's Bay Company attempts to expand their trade inland coincided with a revised British imperial concept which had begun in the 1760s with the acquisition of Canada and territories in India. Now the concentration was on the lucrative markets of India, China and the Far East, rather than the burden of expensive administrative costs and frontier defence in the settlement colonies. The American Revolution and loss of the 13 colonies only strengthened the conviction that trade, not dominion, was the wealth of nations, and the glory of the Second British Empire. The result was a renaissance of the old Tudor faith, and boldness in reconnaissance, exploration, discoveries and vigorous commercial expansion.[41]

In North America the journeys of Samuel Hearne to the Arctic Ocean between 1769-72, and the voyages of Captain James Cook to the northern Pacific between 1776-79, emphasized the renewed British interest in the development of a wider trade. In his "Orders and Instructions," Hearne was to journey over the barrens and down the Coppermine River in search of copper. But in addition, he was to seek a navigable North West Passage through the continent from Hudson Bay and into the "Western Ocean."[42] Hearne's disappointment in finding neither a fabulous copper mine nor a water route from east to west did not deter enthusiasts from continuing to hope and search for such a passage. In 1776 the British Admiralty provided "Secret Instructions" for Cook on his third voyage which urged that "an attempt should be made to find out a Northern Passage by sea from the Pacific to the Atlantic Ocean,...or the North Sea."[43] Like Hearne, but from the opposite direction, Cook searched but found no navigable connection from the west with Hudson Bay. The American Revolution, and particularly the destruction of the Hudson's Bay Company factories in Hudson Bay, stalled any plans for continuing the search for a North West Passage, the discovery of which would link west with east, and ensure British global superiority in trade and commerce.

In 1788 in the midst of an intensive renewal of the rivalry between the Hudson's Bay Company and the North West Company for the fur trade of the northwest, Peter Fidler stepped ashore at York Factory. The 19-year-old Fidler was born in the town of Bolsover, County Derbyshire, England. Although little is known of his childhood, he certainly received some formal education, as he was soon promoted from labourer to post journal writer in that he was "in every way qualified for that station, being a good Scholar and Accountant, and conducted himself with much propriety at the factory, and one I particularly recommend to you as a sober steady young man."[44] Within a year of his arrival, he was despatched inland as a post journal writer, first at Manchester House, and then at South Branch House. Further confidence in Fidler was demonstrated during the summer of 1790 when he was sent to Cumberland House and given an intensive course of study in surveying and astronomy by the esteemed Philip Turnor, a man "skilled in Mathematicks" and the first scientific observer to work actively in the northwest interior. Following his appointment in 1778 as "Surveyor for settling the Latitudes and Longitudes, Courses and distances of the different Settlements Inland," Turnor made a number of scientific expeditions, and accurately surveyed and drew maps of much of the country between the Bottom of the Bay (James Bay) and Great Slave Lake.[45]

For Fidler, the summer learning experience provided him with unusually good prospects for advancement in the company. This fortunate opportunity was the result of an accident to another promising student of Turnor, the young

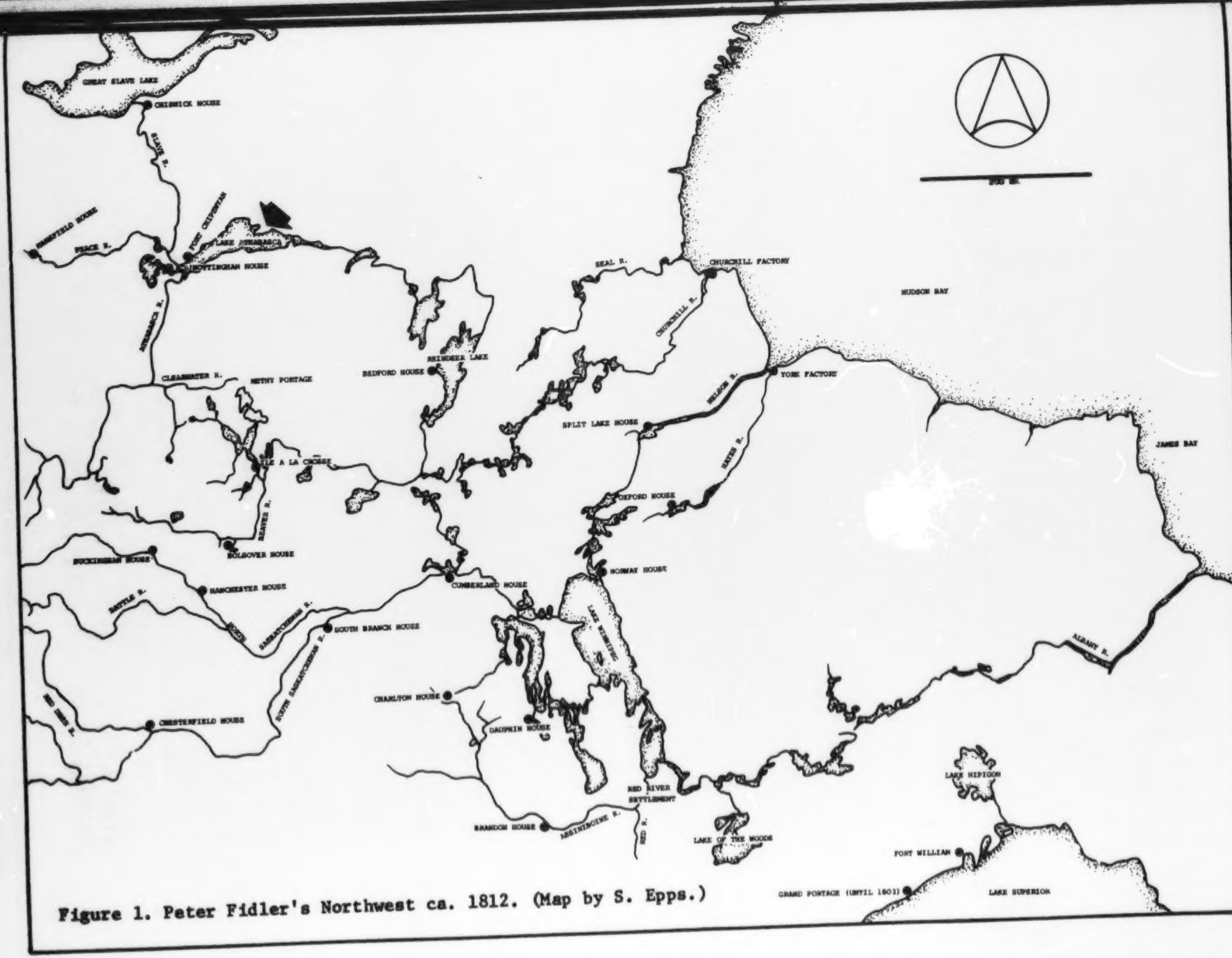

GREAT SLAVE LAKE
CHISWICK HOUSE
SLAVE R.
MANSFIELD HOUSE
PEACE R.
FORT CHIPEWYAN
LAKE ATHABASCA
NOTTINGHAM HOUSE
ATHABASCA R.
CLEARWATER R.
METHY PORTAGE
ILE A LA CROSSE
BEAVER R.
BOLSOVER HOUSE
BUCKINGHAM HOUSE
MANCHESTER HOUSE
BATTLE R.
SASKATCHEWAN R.
SOUTH BRANCH HOUSE
SOUTH SASKATCHEWAN R.
RED DEER R.
CHESTERFIELD HOUSE
BEDFORD HOUSE
REINDEER LAKE
SEAL R.
CHURCHILL FACTORY
CHURCHILL R.
NELSON R.
YORK FACTORY
HAYES R.
SPLIT LAKE HOUSE
OXFORD HOUSE
NORWAY HOUSE
CUMBERLAND HOUSE
LAKE WINNIPEG
CHARLTON HOUSE
DAUPHIN HOUSE
BRANDON HOUSE
ASSINIBOINE R.
RED R.
RED RIVER SETTLEMENT
LAKE OF THE WOODS
HUDSON BAY
JAMES BAY
ALBANY R.
LAKE NIPIGON
FORT WILLIAM
GRAND PORTAGE (UNTIL 1803)
LAKE SUPERIOR
200 MI.

Figure 1. Peter Fidler's Northwest ca. 1812. (Map by S. Epps.)

David Thompson, who had tumbled down a steep river bank while hauling firewood and fractured his right leg. Thompson was on crutches for months, but the leg was "still bad" by the late spring of 1790. A painful inflammation of his eyes about the same time made travel unthinkable, and accepting a suggestion that Peter Fidler would be "a useful assistant...and your skill will improve him in a study his mind seems fixed on," Turnor realistically decided to take him on the upcoming expedition to Lake Athabasca.[46] After wintering at Ile-à-la-Crosse, the Hudson's Bay Company party began their trek north into the region which was not only the keystone in the struggle for supremacy in the northwest fur trade, but was also a possible important link in the continued ambitions of finding a direct water passage from Hudson Bay to the Pacific Ocean.

The North West Passage theory had become popular once again owing in particular to the consuming interest of a noted geographer, Alexander Dalrymple, who was a belated, but persistent, indeed passionate, believer in some sort of waterway through North America. Dalrymple, who had been appointed hydrographer to the East India Company in 1779, saw a splendid and profitable commercial opportunity in uniting the East India Company and the Hudson's Bay Company to their mutual benefit. A first step in achieving the potential of trading from London to Canton was, however, the necessity of acquiring "a more exact knowledge of the interior Lakes and Rivers [of North America]."[47] To assist Dalrymple, the Hudson's Bay Company provided journals, maps and charts of its explorations which included Hearne's account of his "Journey to the Northern Ocean," and the findings of "Mr. Philip Turnor" by now renowned "in making Surveys and in determining the Latitude and Longitude of their several Forts and Factories."[48]

Although the area west of Great Slave Lake was unknown, Dalrymple, who confused Lake Athabasca with Great Slave Lake, was convinced, based upon the sketchy material available, that a mighty river must flow west out of some large interior lake and drain into the Pacific Ocean. Quite possibly, Dalrymple relied too heavily on the 1784 published report of the North Pacific voyage of James Cook who uncharacteristically erred in recording a large inlet as an estuary of a large river. Thus, blinded by the incredible prospects of linking the two great trading companies from Hudson's Bay to India, China and the Far East, and obsessed with the necessity of a North West Passage, Dalrymple in 1789 formally and forcibly enunciated a "Plan for Promoting the Fur-Trade and Securing it to This Country by Uniting the Operations of the East India and Hudson's Bay Companys."[49] According to Dalrymple "the Arathapescow Lake communicates with Hudson's Bay; it is therefore highly expedient to examine what obstructions there are to navigate thither;...the most effectual manner of making this examination, would be from the Arathapescow Lake, which,... appears to be much nearer Hudson's Bay than Mr. Hearne's map represents."[50] Fundamental to his plan was finding a short, direct and navigable water route from Hudson Bay to Lake Athabasca and Great Slave Lake, as these large interior lakes would become the vital link in the great continental waterway which would unite the East India Company and the Hudson's Bay Company and result in British global trade domination.

In the hopes of corroborating the North West Passage theory and grandiose imperial trade scheme of Dalrymple, but also to view the "Athapiscow Country" and report on the extent of the trade conducted there by the competing North West Company, the London Committee of the Hudson's Bay Company sent Philip Turnor "to the Northward" in 1790-92.[51] Apparently the novice Peter Fidler did not comprehend the wider implications of the expedition as he merely suggested that "Our sole motive for going to the Athapescow is for Mr. Turnor to survey those parts in order to settle some dubious points of Geography, as both Messrs Hearne and Pond fixed those places in their respective maps far more to the westward than there is good reason to think them."[52] In fact, the more accurate astronomical observations of Turnor did correct the longitude of Lake Athabasca which proved, as Dalrymple hoped, proving it to be much nearer Hudson Bay than was shown on previous maps. Although this encouraging discovery improved the possibility of a short and direct water route from Hudson Bay to Lake Athabasca, the great western river supposition proved a bitter disappointment.

The voyage of Alexander Mackenzie to the Arctic Ocean, which he erroneously entitled "performed by Order of the N.W. Company, in a Bark Canoe in search of a Passage by Water through the N.W. Continent of America from Athabasca to the Pacific Ocean in Summer 1789,"[53] dashed the hopes of a continental waterway. Mackenzie had relied on the geographical speculation embodied in Peter Pond's map of the northwest, which showed an immense river flowing west from Great Slave Lake towards the Pacific Ocean. Like Dalrymple, Pond envisioned a Pacific outlet, and was convinced that "Cook's River" must originate in Great Slave Lake.[54] Although the semi-literate Pond was an intrepid explorer and trader, his mapping accuracy was most suspect. For instance, Pond thought that the western end of Lake Athabasca was "within six days travel of the grand Pacific Ocean," whereas Turnor's correct surveys showed a longitudinal discrepancy in Pond's observations which was equivalent to about 700 miles.[55] The major error in Pont's map, much to the chagrin of all, was that the great river which became known as the "river of disappointment" or the Mackenzie River flowed not west to the Pacific, but north to the Arctic Ocean.

Before Turnor even reached Lake Athabasca, he met Mackenzie who was travelling south to the North West Company annual summer rendezvous of agents and wintering partners at Grand Portage. At first Turnor was sceptical of Mackenzie's discovery and recorded that the explorer "says he has been at the Sea, but thinks it the Hyperborean Sea but he does not seem acquainted with Observations which makes me think he is not well convinced where he has been."[56] But subsequent surveying by Turnor at Lake Athabasca coupled with Cook's observations from the Pacific coast showed that Great Slave Lake and Lake Athabasca were not close to the Pacific, but were in fact much nearer Hudson Bay. With the additional information provided by Mackenzie's journey, evidence became conclusive that a Pacific outlet from either of these two large interior lakes was non-existent. This realization destroyed the hopes of a trading route to the Pacific for the North West Company, Dalrymple and the Hudson's Bay Company. The London Committee of the Hudson's Bay Company had been enthusiastic about finding a route to the Pacific because a Pacific outlet would reduce transportation costs of furs and supplies and provide increased profits with the extension of trade to the Far East. If such a water route existed, the Hudson's Bay Company would have been anxious to co-operate and share in the profits with their North West Company rivals.[57] But the dream of men like Pond and Dalrymple of a great continental waterway was a grand illusion, and the theory of a North West Passage and a Pacific outlet became discredited.

Although imperial trade aggrandizement through North America was nullified, the Hudson's Bay Company remained interested in the lesser of the two great suppositions advanced by Dalrymple - a direct and short water route from Hudson Bay to Lake Athabasca. The increased desire of the company directors to locate such a passage was prompted by Philip Turnor who had been instructed in part to view and report on the "Athapiscow Country." He was astounded at the powerfully entrenched and unopposed position of the North West Company in that most profitable fur trade region. To Turnor, Fort Chipewyan, which had been constructed in 1788 at Old Fort Point, a sheltered bay at the southwest end of the lake and about eight miles from the mouth of the Athabasca River, was "the compleatest Inland House I have seen in the Country this is the Grand Magazine of the Athapiscow Country and I am informed they have a sufficient quantity of Trading Goods in this Country for at least two years to come...."[58] In the romantic and colourfully descriptive language of a generation later, this establishment, complete with an impressive library, gardens, "a very fine fishery," and an ample supply of birch rind "fit for building large Canoes...," became know as the "Emporium of the North" or the "Little Athens of the Hyperborean region."[59]

Clearly, the Athabasca was the heart of the commercial profits of the North West Company, and Turnor urged the establishment of a Hudson's Bay Company "Settlement" in the region, if the company wished to compete effectively in the fur trade. He supported his recommendation by recording that the Indians were "unanimous in their request that a Settlement may be made amongst them...," and warned that "neglecting to send to the Northern parts...must lessen the Hudson's Bay Company in the Eyes of the Indians and greatly discredit their Servants to the no small satisfaction of the Canadians."[60] In addition, although the Indians agreed that they were always well treated at Churchill Factory where they had traditionally travelled to trade, "the distance is so very great that it fatigues them very much occasions great loss of time that they live very hard upon the journey and frequently many of them starve to death"; as a result they would not continue to travel to the Bay unless absolutely necessary.[61] Finally, the Hudson's Bay Company's chances of challenging successfully for the fur trade in the Athabasca were good as the Indians had developed "a settled dislike to the Canadians," particularly because of their practice of seizing Indian women as trade payment "for their Husbands or Fathers debts and then selling them to their [North West Company] men from five hundred to two thousand Livres and if the Father or Husband or any of them resist the only satisfaction they get is a beating."[62] Indeed, according to the North West Company, the local Indians were unusually "insolent to them," and their behaviour was blamed on the presence of Turnor and company, and the desire of the Indians that the Hudson's Bay Company return next year with trade goods.[63]

The suggestion of a Hudson's Bay Company intrusion into the Athabasca was "heartily laughed at by the Canadian Gents"[64] who feared no immediate threat, but nonetheless warned that they would tolerate no opposition in the region. For the Hudson's Bay Company, however, the Athabasca was the keystone in the struggle against the North West Company for the profitable beaver trade. Thus, the discovery of a direct and short water route from Hudson Bay to Lake Athabasca became a *sine qua non* for the Hudson's Bay Company who wanted economic profits, territorial sovereignty, indeed paramountcy in the "Athapiscow Country." If a direct water route could be found, the Hudson's Bay Company would possess the trading advantages of cheap transportation and easy accessibility. But more important, a direct water route would legally eliminate the North West Company from trading in the Athabasca because by the Royal Charter of 1670, Rupert's Land included all waters that flowed into Hudson Bay. The complexities of such a possible legal case would have been intricate, but repeated attempts by the Hudson's Bay Company to find a passage were futile.

For Peter Fidler, the Hudson's Bay Company Athabasca expedition of 1790-92 was a significant learning experience in which his skills in surveying and mapmaking, as well as his knowledge of wilderness and Indian life, were greatly improved. Turnor noted that his young assistant had become an astronomer and had written for "Sextants, watches...," and seemed "a likely person to succeed me."[65] Fidler furthered his expertise by accepting an invitation by the local Chipewyan Indians to winter among them. His robust nature and competence were not unnoticed; he was observed to be "a very fit man for surveying in this quarter, as he can put up with any sort of living, that is in eating and drinking, he is also a very steady sober young man."[66] With no provisions or tent, and with scant clothing and little shot and powder, Fidler recorded in his "Journal of a Journey with the Chipawyans or Northern Indians, to the Slave Lake, and to the East and West of the Slave river in 1791-2" that in early September he "embarked with 4 Canoes of Jepewyans, in order to remain the whole winter with them, and acquire their Language."[67] His facility for mastering languages became evident quickly as he noted on 7 February that "this night dreamed in the Chipawyan Language the first time and I appeared to have a more extensive command of words when asleep than when awake being so long and not hearing anything else spoken but the Jepewyan - custom is second nature."[68] After spending "an agreeable winter," Fidler returned "in good health" to Turnor's temporary Athabasca camp. He had managed the experience well, and was acknowledged to be "a very fit hand for the Country as he stands hunger and the Weather well and can eat anything that the Indians will."[69] The far reaching consequence of Fidler's winter sojourn with the Chipewyan, however, was that he had "acquired a sufficiency of their Language to transact any business with them,"[70] and this accomplishment was to be of vital importance to him and the Hudson's Bay Company in the years ahead.

In 1792 Philip Turnor returned to England on the *Sea Horse* from York Factory. Although he never returned to Hudson Bay, his report appreciably affected the future activities of the company, especially in the Athabasca. To Turnor, the establishment of "a Settlement" in the Lake Athabasca region was essential if the Hudson's Bay Company wished to regain fur trade profits and retain the respect of the Indians. He informed the directors that the Chipewyan "enquired very earnestly if your Honours was going to have a settlement in this Quarter," and that they were told "that the very next summer there would be one built."[71] Although "future Plans for the Increase of Trade" were proposed, and a "Master to the Northward" was appointed to combine trade with exploration from Hudson Bay to Lake Athabasca, little of substance was achieved over the next several years. The outbreak of war with Revolutionary France in 1793 and the subsequent conflict against Napoleon for more than 20 years severely curtailed British imperial considerations. In North America the Hudson's Bay Company was affected drastically by the Napoleonic Wars in terms of reductions in exploration expenses and difficulties in obtaining trade goods on a regular basis. But the most serious setback for the company during this period was the acute manpower shortage. The Orkneymen upon whom the company relied were needed desperately by the Royal Navy during these critical times, and the agent of the Hudson's Bay Company at Stromness had little success against the authority and power of the British recruiting officers and press gangs.[72] As a result, the plans of the company for competing in the Athabasca were delayed until the beginning of the 19th century.

Peter Fidler had taken full advantage of the opportunity presented to him by Turnor's expedition, and he had earned the reputation of being an enterprising traveller and a competent surveyor. His enthusiasm, skill, and physical toughness were rewarded immediately by the company who sent him "from York Factory Hudson's Bay to Cumberland, Hudson's, Manchester and Buckingham Houses up the Saskatchewan River by way of Lake Winnipeg in 1792."[73] The intention of the journey was to assist the company in stabilizing and extending their new inland settlements along the upper reaches of the north Saskatchewan River. In part to trade and survey, but also to gain more knowledge of Indian life and manners, Fidler undertook a winter journey "over Land from Buckingham House to the Rocky Mountains."[74] He mapped much of the area to the southwest of the north Saskatchewan River as far as the foothills of the Rockies. He observed and recorded various aspects of plains Indian life which included descriptions of pounds and jump sites, among them the "Old Woman's Buffalo Jump," and of the terrible waste and "intollerable stench of the great number of putrified carcasses."[75] He spent more than five months with the Piegan, and managed to learn the Algonquin language of the mighty Blackfoot Confederacy. During these months, of which a considerable part was spent in camp in the Highwood-Willow Creek area, he met bands of Piegan, Blackfoot, Snake, and was the first European to provide a record of the Kootenay mountain people.[76] Fidler returned to Buckingham House about mid-March 1793 and then departed for Hudson Bay. Although he commented that the plains Indians had treated his party "in a very hospitable and friendly manner," a group of Gros Ventre attacked South Branch House and killed three Hudson's Bay Company employees the next year.[77]

The continued interest of the Hudson's Bay Company in finding a short and direct water route to Lake Athabasca was evidenced again in the summer of 1793 when Fidler was sent on the Seal River expedition. Although flat-bottomed or York boats could be used on the river, there was no direct passage to Reindeer Lake, and the area beyond to Lake Athabasca was uncharted. Also, the manpower shortage, and a nasty internal and sectional rivalry between Churchill Factory and York Factory, which were for a time in direct competition with one another produced further delays for the Hudson's Bay Company in attempting to penetrate and compete in the Athabasca.[78]

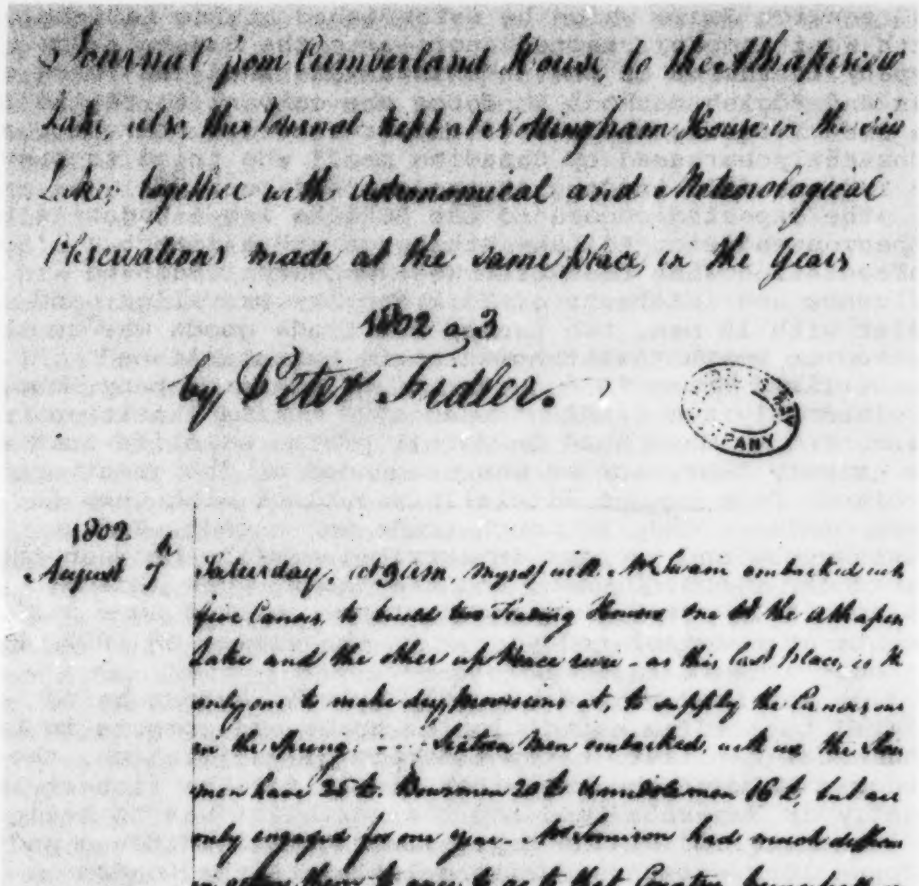
For the next two years Fidler remained inactive at York Factory performing various perfunctory duties. These idle months allowed him time to pursue other interests, and in the autumn of 1794 he married "à la façon du pays" a local Swampy Cree woman called Mary. Although his official company Journals understandably provide no details of his domestic affairs, a private notebook and a later "Red River Settlement: Register of Baptisms" record the baptisms of several children, the first of which was born soon after his Indian marriage.[79] Also during this period Fidler sent the first of several maps to the London Committee of the Hudson's Bay Company. The map, dated 1795, was concerned with his Piegan winter journey of 1792-93 and contributed to the cartographic knowledge of that part of North America.[80]

Finally, the London Committee of the company became annoyed that Fidler was shackled at the Bay and wrote his superiors that "for the future we direct him to proceed inland on discoveries."[81] But local sectional interests prevailed and Fidler was sent not from Churchill Factory into the Athabasca region, but on a much more York Factory oriented expedition. Travelling to the upper reaches of the Assiniboine River, he built Charlton House in the autumn of 1795. The fur trade rivalry was intense in the area as "there is five Houses very near each other," and this situation was compounded by the ludicrous spectacle of two Hudson's Bay Company posts competing against each other.[82] Fidler spent the winter at Charlton House, and the following summer he traded at Cumberland House. His extensive work and dedication were rewarded in 1796 when he was appointed chief surveyor and mapmaker of the Hudson's Bay Company.[83] Fidler spent the next winter at Buckingham House, and in the spring of 1797 he journeyed to York Factory with 19 canoes and two boatloads of furs. He returned to Cumberland House in the autumn and remained there for the next two years where he was engaged in trade and as the post journal writer. During this time a second son, Charles, was born in October 1798.[84]

In 1799 the London Committee of the company terminated the sectional conflict between York Factory and Churchill Factory by establishing routes independent of each other and ordering the former to withdraw from the "Athapascow Country." But to co-ordinate trade policy, the decided route to the Athabasca passed through York Factory and Lake Winnipeg, Cumberland House, Ile à la Crosse, the Methy Portage and the Clearwater and Athabasca rivers. This wise and realistic compromise allowed the Hudson's Bay Company contingents going north to be provided with pemmican supplies and quarters at the various company houses. Also, the route ended the "disagreeable apprehensions" and "insuperable Objection" of the Hudson's Bay Company employees who detested the isolated, harsh and unproven Seal River-Reindeer Lake route where they would have had to fish and hunt their way inland.[85] Supplies and canoes were collected at Ile à la Crosse, but Fidler was sent farther west, along the Beaver River and to Lac LaBiche. He built Bolsover House at Meadow Lake "en route," and wintered at Greenwich House which he established at Lac LaBiche. The North West Company reacted angrily to the Hudson's Bay Company intrusion in the Athabasca watershed and "used every mean and rogish method" to force the company to retire from the area. During the winter Fidler recorded that he was "constantly harassed by Canadian men," who tried to prevent the Indians from trading at the company post.[86]

The expected sequel to Lac LaBiche was a Hudson's Bay Company expedition to Lake Athabasca and a direct confrontation with the North West Company. But the influence and interests of York Factory prevailed, and Fidler with 18 men, two canoes and trade goods was sent instead to south Saskatchewan where he established Chesterfield House in August 1800.[87] This company House survived only two trading seasons.[88] While stationed there, Fidler described in detail plains wildlife such as the grizzly bear, and he was astounded at the great numbers of bison; "the ground literally was black with them for a great distance."[89] Although trade was steady, Indian restlessness and rampant intertribal warfare between the Blackfoot, Blood, Piegan, and the Sioux, Cree, Snake, Assiniboine, Gros Ventre and Kootenay, caused some anxious moments at the isolated post. By the summer of 1802, Fidler was back at York Factory.

He remained at the bay only briefly before being ordered to lead an expedition to trade and compete in Lake Athabasca. At last, after a decade of vacillation, the struggle between the two giant rivals for the richest beaver country in Rupert's Land and the northwest was to begin. Fidler travelled up the Hayes River to Oxford House and stopped long enough to write a letter to the London Committee in which he enclosed "a Map of my Journey from Buckingham House to the Rocky Mountains in the years 1792 and 3," with additions which made the previous 1795 map more complete.[90] Soon after, *The King George* sailed from York Factory carrying "some Maps and Papers" sent by Fidler of which the new map, dated 1801, purported to show for the first time the drainage network of the Missouri River, and provided new insights into the location and width of the western mountain system. Aaron Arrowsmith, the noted cartographer and publisher, thought the map contributed significantly to geographical knowledge, as well as providing much "curious information respecting the face [of land area] until now unknown to Europeans."[91] The map, which in part was based on an oral account by Ac Ko Mok Ki, a Blackfoot chief whom Fidler had met at Chesterfield House, was quickly incorporated into the new and authorative maps of North America. With this business concluded, Peter Fidler, an expert in surveying and mapmaking, and with years of experience in the Indian trade and the rigours of travel and wilderness life, began his Athabasca adventure.



Journal from Cumberland House, to the Athapescow Lake, also the Journal kept at Nottingham House in the said Lake; together with Astronomical and Meteorological Observations made at the same place, in the Years

1802 & 3

by Peter Fidler.

1802
August 7th Saturday, at 9 a.m. Myself with Mr Swain embarked with five Canoes, to build two Trading Houses one at the Athapescow Lake and the other up Peace river - as this last place, is the only one to make dry provisions at, to supply the Canoes out in the Spring. - - - Sixteen Men embarked with us, the Steersmen have 25 £. Bowsmen 20 £ Middlemen 16 £, but are only engaged for one year - Mr Swain had much difficulty in getting them to agree to go to that Country, principally on account of the poor living which is only fish constantly & also the great length of the road & the number of Carrying places they have to pass before they arrive there. - Sailed through Cumberland House Lake, & went up the Sturgeon river [illegible] about 3 miles and put up in the carrying place at [illegible] the same shore.

8 Sunday - [illegible] Canoes [illegible] embarked at 7 a.m. [illegible]

Figure 2. Initial entries from the Nottingham House Journal, August 7 and 8, 1802. (Hudson's Bay Company Archives.)

NOTTINGHAM HOUSE, LAKE ATHABASCA, 1802-1806

Peter Fidler embarked at 9 A.M., Saturday, 7 August 1802, from Cumberland House with Mr. Thomas Swain, 16 men and five canoes to establish two trading posts in the Athabasca. Fidler was to build on the lake, near the North West Company Fort Chipewyan which had so impressed Turnor in 1791, and which had been relocated on the northwest shore about 1800. Swain was to trek farther to the Peace River and establish a provision post.[1] Although the Hudson's Bay Company had long desired an expedition to the Athabasca to compete effectively against the North West Company, there had been great difficulty in recruiting men for the new trading venture because of the rough living conditions, isolation, danger and staple diet of fish. Nonetheless, optimism was expressed for the success of the mission, particularly since the local Chipewyan Indians had always been more favourably disposed to trade with the Hudson's Bay Company.

The Chipewyan, or "Northern Indians" as they were referred to by the Hudson's Bay Company, were an Athabascan-speaking people, like the Beaver, Yellowknife, Dogrib, Hare and Slave. The extent of the lands of these tribes, vaguely defined, stretched from Churchill Factory on Hudson Bay west and north through the Athabasca country, Great Slave Lake, and the Peace River to the Rocky Mountains and the Arctic Ocean.[2] In the Athabasca specifically, the success of the fur trade was dependent on the predominant Chipewyan. They were a "numerous people," according to Alexander Mackenzie, and "sober, timorous, and vagrant, with a selfish disposition which has sometimes created suspicions of their integrity."[3] In their rugged and desolate lands, they were "capable of great fatigue," noted Samuel Hearne who had travelled the barrens with them.[4] He also observed that the women possessed a "very masculine appearance," the natural result of their excessive hard labour in which they were accustomed, "nine months of the year, to travel on snowshoes and drag sledges of a weight from two hundred to four hundred pounds," and thus in size most of them would have made "good grenadiers."[5] Throughout the year these nomadic people lived in easily transportable and light skin tents.[6] Dogs were vital for carrying the tents, kettles and personal belongings. These dogs were vicious, as Fidler experienced during his first days on the lake in September 1802.[7] The diet of these Indians consisted of roots, berries, ducks, geese, moose and deer meat, but fish, particularly tickameg (white-fish) was a staple. In temperament, with the notable exception of the summer of 1804 when they killed six North West Company men at the east end of Lake Athabasca, the Chipewyan were regarded by the traders as a "peaceful people, abhoring blood shed."[8]

Although desirous of trade goods, the Chipewyan refused to succumb to the easy temptation of economic dependence on the fur trade, and instead periodically reverted to their traditional hunting and fishing economy.[9] Much to the chagrin of the European traders they would often wander into the bush pursuing their own interests, and blatantly ignore the trading posts. In an effort to entice the Chipewyan to trap and trade consistently, the traders rewarded the more productive hunters with the status of "chief," and the North West Company in particular were excessive in providing presents and using alcohol in the trade.[10] However, unlike most of the other tribes, the Chipewyan generally refused to accept liquor as a major trade item, although they would trade readily for ammunition.[11] Fidler noted throughout his Nottingham House journals that although ducks and geese were obtainable, the Chipewyan were reluctant to trade their meat provisions in winter, and this situation caused an unexpected provision shortage for the Hudson's Bay Company group.[12] Thus, partly because of their isolated geographic position, the Chipewyan were not particularly affected by the common process of Indian acculturation in the fur trade. They hunted beaver for trade, but even more they hunted and fished for food. As a result, the Chipewyan, discriminating traders, conformed little to the society of the newcomers, and instead retained to a high degree their native culture.

The Beaver Indians, linguistic cousins of the Chipewyan, were the other major tribe with which the Hudson's Bay Company had an association during the four-year Athabasca adventure. Thomas Swain, a young man who had joined the company in 1793 as a post writer, and who was in charge of Fidler's satellite posts of Mansfield House and Chiswick House, recorded his observations of these local people.[13] In contrast to the usually gentle Chipewyan, the Beaver Indians were warlike and "a brave and bold Nation....Always armed, Drunk or sober and [it] is their custom to go with a large Bayonet in their hand or a knife hidden under their stockings. They are not intimidated like the Jepwyan."[14] In addition to their violent disposition, the Beaver were habitual users of rum and brandy. Swain noted frequently that the Indians were "very Drunk and very troublesome" about the house. However, when their condition was "sober they were quiet and behave well towards [us]."[15]

Fidler entered Lake Athabasca on 17 September and immediately began to look for a dry area as the country was inundated by the annual run-off from the mountains in the north.[16] The group paddled to the North West Company post located at the northwest part of the lake, and disembarked about "1/2 mile from the French Houses." Fidler soon moved to a smaller island for safety, as the half-wild and ravenous Indian dogs became an immediate and dangerous menace to both the men and the provisions.[17] With two men, Fidler next began to look for a location to construct a post. Nothing suitable was found near the "French Houses" where he initially had hoped to build, as there was insufficient wood. However, Fidler "found a good place for wood and an excellent place for fishing on an island about 3/4 mile from the French Houses which is by far a more eligible situation than where they are."[18] Pleased with the choice, Fidler packed the canoes and paddled to the island. The men pitched the tents, sharpened their axes and saws and prepared to construct "a House." The site was English Island; and the new Hudson's Bay Company post, which eventually included, "The Big House," a fish shed, a store house and a garden, was named Nottingham House. Here Peter Fidler, his Indian family, and his small contingent of men, lived a monotonous existence through four harsh Athabasca winters. But housing and storage accommodation was adequately constructed, and the daily problem of food was managed reasonably well under the direction of Fidler. Some luxury provisions such as bacon, butter, cheese, flour, molasses, Orkney oatmeal, raisins, brown sugar, tea, and pemmican were transported in canoes to the lake,[19] but these provided only a portion of the nutritional needs of the group. Gardens were planted and yielded potatoes and turnips to further supplement the diet. The men also hunted and gathered local eatable roots and berries. The Chipewyan Indians assisted by trading ducks and geese, and moose, beaver, bear, deer, buffalo meat and "fatts."[20] Rum and wine were available but apparently only for the personal consumption of Fidler, the master, yet he routinely provided his men with trade brandy and extra rations at Christmas and New Year's. Yet throughout their stay in the Athabasca, fish was the life-sustaining staple food of the diet. Although the supply of fish was sometimes dangerously low, and at one point there were only "10 lbs. of dry scraps of poor meat in the House,"[21] no Hudson's Bay Company man at Nottingham House died of starvation. In comparison, the North West Company were "barely hand to mouth," according to Fidler, and all too often a fur trade rival was "found frozen to death upon the Lake through hunger."[22]

The rigid, meticulous and serious manner of Fidler produced less than devoted loyalty to his leadership, and this would be more clearly evidenced later in his career. Yet his Indian family always provided a happy and tranquil retreat from the hectic business affairs and problems of the fur trade. At Nottingham House he studied the French language, read and bound his books with a makeshift press,[23] while Mary, trained in "the accomplishments of a feminine life," cooked, made clothes and satisfied his several needs.[24] Two more children were born during their years in the Athabasca, Sally in November 1802 and Decusroggan in October 1804, and a sixth, Andrew, was born in November 1806, shortly after they departed.[25] With food and shelter provided, along with the amenities of family life, Fidler turned his energies towards the chief purpose of the adventure which was to compete against the North West Company in the Athabasca fur trade.

From the moment the Hudson's Bay Company men paddled their canoes out of Cumberland House and "to the Northward," interference and harassment from the "French" and "Canadians" plagued the success of the mission. In the first season Fidler wrote that the competitors used "every means both foul and fair to hurt us."[26] They positioned a canoe just ahead of the Hudson's Bay Company group to prevent Fidler trading for food "en route"; and in later months they burned a company canoe, and constructed a watch tent to observe the activities of Nottingham House.[27] The "Canadians," noted Fidler, were "much exasperated at our trading in these parts" and "will do everything in their power to prevent us from getting a single skin or a bit of meat...[they are] such a deceitful set, no putting the least confidence in what they say with safety. [They] wish to deceive everyone, no matter whom provided they can gain a sixpense by it."[28] The North West Company told the Chipewyan that the Hudson's Bay Company would remain only one winter in the Athabasca, and that they were not to trade nor "share their hunt with us" or they would "receive a good drubbing."[29] The difficulties of competing in the fur trade were compounded by the January 1803 return of "Mr. Swain and all our men" from the Peace River in a starving condition. The abandonment of the supposed provision post "caused much inconvenience and trouble and expense" as provisions became scarce.[30] By the early spring the competition had become so nasty that the North West Company resorted to plundering the Chipewyan camps of furs so that the Hudson's Bay Company would receive nothing in trade.[31] In addition, the competitors bestowed "bountiful presents, especially rum" on the Indians, but the result was that the native hunters and trappers became indolent, and fur profits were greatly reduced. The total return in furs for the North West Company after their incredible expenses was an unimpressive "182 Packs and they arrived with 28 well loaded Canoes last fall."[32] For his part, Fidler was able to pack his embarrassingly meager accumulation of furs in "6 small bundles."[33] The results of this first season of competition demonstrated that the fur trade struggle in the Athabasca could be ruinous for all parties.

After spending the summer at Cumberland House, Fidler returned to Lake Athabasca, with nine men and three canoes. Once again the Canadians employed similar tactics and prevented the Indians from trading provisions to the

Hudson's Bay Company contingent on their journey to the lake.[34] Also the North West Company continued their policy of distributing "great quantities of goods to the Indians for nothing in the [very expensive and costly] war to win Indian favour in trade."[35] After reaching Nottingham House, Fidler despatched Swain and a small group to the Slave River where Chiswick House was built and survived for three years.[36] During the course of the second season in the Athabasca, the Hudson's Bay Company men endured physical threats, harassment and a number of "malicious tricks" which included robbing the turnip garden, interfering with the fishing nets and lines and cruelly killing "one of our best dogs."[37] The rivalry eventually degenerated into a silly confrontation game in which each company established "watch houses" to better view the activities of the other.[38] These antics coupled with the unwillingness of the frightened Indians to come and trade at the Hudson's Bay Company House frustrated Fidler who realized that his task of successfully competing was almost hopeless, particularly as "We have so very few men, they [NW Co.] are so numerous."[39] In a letter of despair to Swain at Chiswick House, Fidler decried his inability to procure furs, and the fact that "the Jepwyan are such very great cowards that the very sight of the Old Co. [NW Co.] men intimidates them" with the result that no Indian would venture to Nottingham House to trade.[40] As well, the excessive numbers of the North West Company competitors who employed 195 men north of the Methy Portage alone, and their "unfair method(s)" in preventing Fidler from trading forecast certain failure.[41] The news from Swain was equally discouraging as he indicated that his situation in all respects was similar.[42] In late May 1804, Fidler departed for Oxford House, but no provisions were waiting at that post, as his superiors now provided little support for the adventure, and he was forced to trek back to Cumberland House. In this trading season the North West Company had gathered "315 Packs whereas they had sent in 25 Canoes of trade goods,"[43] a better performance than the year before. A disillusioned Peter Fidler did not record his seasonal Athabasca fur returns.

The third Hudson's Bay Company attempt to trade in the Athabasca was begun half-heartedly and the expedition consisted of Fidler, Swain, eight men and two canoes. Fidler recorded that "only a few necessaries" were taken because of the "possibility of abandoning these places in the spring."[44] But the startling news that the Chipewyan had killed six North West Company men during the summer in revenge for "the numerous insults and pillaging" and "very harsh and Barbarous usages" inflicted on them, encouraged Fidler in the hopes of a profitable trade in furs.[45] Indeed, although terrified at the expected Canadian retaliation, some of the bolder Chipewyan began to conduct a clandestine trade with Fidler at Nottingham House.[46] The result of this new and partial success was that Fidler was ordered to remain in the Athabasca, and he dutifully promised "to do everything to carry business on in these parts with more effect."[47] But his enthusiasm and optimism were dashed by the merger of the North West Company with the XY Company, which had previously often co-operated with Fidler in the Athabasca against their mutual and powerful competitor. "The merger of the two Co.s," he concluded, "plus the great cowardice of the Indians gives us little prospects for a good trade. Their great numbers and their unfair means has an effect upon the Indians. We are so very few in numbers to cope with such rascals as we have for neighbours."[48] The strengthened North West Company now acted quickly and decisively to expel the Hudson's Bay Company permanently from the Athabasca. Fidler was invited to tea by James MacKenzie, master at Fort Chipewyan, and was told that the Hudson's Bay Company "had no right in this Quarter and must leave. [The North West Company] would act with the greatest severity in order to expel us. They would not allow one Indian to go inside our House."[49] The harassment against the Hudson's Bay Company intensified as the North West Company "burned down a small [watch] house we had built near them [and] set fire to all our wood that we had collected with great labour...to build a new House."[50] By the spring of 1805 Fidler's men were "so much intimidated at the Rascally behaviour of the Canadians [that] we shall never be able to do anything in any new Quarter while we are so very few in numbers."[51] Just before embarking for Cumberland House, Fidler met Samuel Black, a Scot and ex-clerk of the XY Company who had become the most aggressive new member of the North West Company harassment and intimidation squad. Black sauntered "about with a very long cutlass and threatens every one who might come to us."[52] He soon became notorious as a zealous and cruel foe of the Hudson's Bay Company, particularly during Fidler's final year in the Athabasca.

Fidler arrived at Nottingham House on 11 September 1805. Harassment began immediately as the North West Company did "everything to make things miserable, they observe constantly, burned a good Canoe, ripped up the garden, nearly burned down our House.... Their intention is to starve us out."[53] These daily and abusive tactics humbled the Hudson's Bay Company men and along with no prospects of trade convinced Fidler that competition was senseless, and with Swain, he capitulated to the North West Company at Fort Chipewyan. By the terms of the "agreement," Fidler promised to withdraw the Hudson's Bay Company contingents from the Athabasca for two years, providing the North West Company would pay all the Hudson's Bay Company credit for Nottingham House and Chiswick House to a total of 500 Made Beaver. The particulars were that five days before the spring embarkation the North West Company would pay 300 beaver and 200 Made Beaver in furs, as well as providing six bags of pemmican, ten moose and a small canoe for fishing. In return for this generous settlement Fidler would not attempt to trade with the Indians.[54] Although in theory the competition was over, Black, whom Fidler regarded as "the most mischevious, malicious person I ever saw," maintained a close scrutiny on the Nottingham House.[55] In fact, over the next several months Fidler's nerves were worn to a frazzle by the high-spirited antics of Black which included an irritating game of musical watch houses which consisted of periodic relocations of the small prefabs to various strategic positions around Nottingham House for better viewing.[56] On one occasion Black "tore a large piece of Bark from the roof of the [Big House] and placed it upon the top of our chimney which soon took fire and nearly set the whole House on fire."[57] The Black watch effectively guarded against Indians coming to Nottingham House, but occasionally a Chipewyan would arrive "in a very private manner" to trade.[58] A Cree band "took out their Bayonets and was near stabbing" when they were denied a visit to the house, but "the Canadians persisted and kept them from seeing us."[59]

New Year's Day 1806 was heralded at Nottingham House with a volley salute "according to the annual custom" by the North West Company men. Fidler responded by providing these cheery messengers with "2 Drams each and they went away."[60] Following this exchange of pleasantries, the courtesies ended abruptly, and the renewal of the policy of harassment and intimidation commenced, and continued for the duration of this trade season. Black, as always, was at the forefront of the disturbances as he prowled persistently at night around Nottingham House "yelling" and "hollering" and discharging his musket with the result that he soon drove Fidler's men into a state of "nervous distraction."[61] Fidler, mentally and physically drained, informed the Hudson's Bay Company Committee that "it is useless to stay here. No furrs and the men are intimidated and will not return."[62] A final blow was the refusal of the North West Company to fulfill the obligations and promises of the agreement of the previous fall, because, they argued, the copy of the agreement was not signed.[63] Fidler stated that "we fulfilled our part,"[64] but this was untrue, as he had traded with the Indians contrary to the agreement at every possible opportunity. As the small Hudson's Bay Company contingent paddled out of the lake, never to return, their dispirited leader must have felt sadness, frustration and grave disappointment; for Peter Fidler, June 1806 was the nadir of his fur trade career. In a final Nottingham House post journal comment, he excused the Athabasca adventure with a simple truth - "Too few to do anything for the Company."[65]

THE YEARS AFTER

Peter Fidler reached York Factory in mid-summer 1806. He rested at the bay for an unusually brief period before being despatched as master to Cumberland House. The winter on the Saskatchewan provided an incredible contrast to the previous four years of distress in the vital and bitterly contested Athabasca fur trade theatre. During the Christmas season he actually "dined at the French House" nearby,[1] and all was friendliness and good cheer. The following summer Fidler explored the area around Reindeer Lake and Lake Wollaston, and as far as the eastern end of Lake Athabasca, and discovered a "New Track" to the Churchill River and factory. Although a short route from the bay to Lake Athabasca had long been a priority, the general tone of the Hudson's Bay Company at this time was that North West Company would leave "[us] quiet in the Saskatchewan that they may not be molested in the Athapascow."[2] As a result no effort was made to consolidate or exploit this new finding, nor to improve the unpretentious Hudson's Bay Company trading establishment in the area. Indeed their "House or rather Kraal" at Reindeer Lake was "the most miserable hovel that imagination can conceive," and this "dirty temporary shelter" was considered to be "infinitely below what an Ourang-Outang would have contented himself with...," and a disgrace to the aspiring commercial and trade ambitions of the Adventurers of England.[3]

After his discovery of the "New Track," Fidler travelled to York Factory and then to the Lake Winnipegosis area where he wintered at Swan Lake House. At this time he surveyed and mapped much of the Lake Winnipeg-Red River region, and in August 1808 he sent more maps and papers to England. He then returned to Reindeer Lake and wintered at Clapham House. The ill-conducted and timorous attempts to encroach on Lake Athabasca were easily thwarted by the intimidating tactics of the North West Company. Between 1806-1809 the Hudson's Bay Company "Journals of Reindeer Lake" recounted numerous tales of ill-treatment and assault by the "Canadians and French" who furthered the degradation by continually "swearing and blaspheming without either manners or discretion."[4] After enduring a miserable winter and with no chance of success against the trade rivals through Reindeer Lake, Fidler journeyed south again and eventually spent the winter of 1809-10 at Split Lake House. In the summer of 1810, he was rewarded for his long, dedicated and valuable service in the company by having his title of chief surveyor confirmed, his salary raised to £100 per year and a suggestion that he be appointed a chief trader with a share in profits.[5]

The honours bestowed on Fidler were part of a recently devised plan by the London Committee called the "Retrenching or New System." The scheme was formulated during the winter of 1809-10 by Andrew Wedderburn (Colville by Royal Licence in 1814), a new committee member who developed this comprehensive plan for reorganization and management of the fur trade. He accentuated efficiency, economy and individual initiative in combating the North West Company.[6] In spite of the rivalry which cost the Hudson's Bay Company L19000 in trade losses in 1809, Wedderburn refused to abdicate from the fur trade. As economy was central to the plan, older servants were retired on pensions and several incompetent or indifferent employees were released. As well, accounts were carefully scrutinized and expenses reduced where possible.[7] The administrative alterations of the New System included a division of the company's trade into two areas: a Northern Department and a Southern Department. Further, each department was divided into specific districts containing individual posts. The Northern Department, where Fidler would play a prominent role, consisted of the districts of York, Churchill, Saskatchewan and Winnipeg.[8] In "Instructions for Trade" in 1810, the masters at the various posts, who had been granted increased responsibilities such as fixing the price standard for trade at their "Houses," were urged to demonstrate a "determined firmness" against the North West Company rivals.[9] Finally, and in addition to the general theme of efficiency, economy and individual initiative, the New System encompassed two major objectives - the usurping of the profitable North West Company trading dominance in the Athabasca, and the establishment of a settlement and agricultural colony in the Winnipeg District.

Colin Robertson, an ex-clerk of the North West Company who retained a personal enmity against that organization, was particularly vociferous in proposing not only a renewal of the Hudson's Bay Company extension of trade into the Athabasca, but an immediate and vigorous onslaught on the predominant position of their rivals in that region. In his plea to the London Committee, Robertson caustically assessed that the Athabasca "Country is the richest in Furs that has as yet been discovered, and lies so contiguous to one of your principal Factories, say Churchill, that it can be established from there at one third of the expense which it costs the North West Co. ...the Canada Merchant performs a voyage of four months to purchase Beaver at the threshold of your doors."[10] Although Robertson continued by chiding the London Committee for neglecting the great advantage of the bay over the opposition from Canada, the Hudson's Bay Company Committee decided to postpone his ambitious enterprise, and preferred instead to retrench and consolidate in areas where the company was already established.

As part of the strengthening programme, Fidler was despatched to Ile à la Crosse in June 1810. But the post was too convenient to the Methy Portage, and thus too close to the Athabasca, and the North West Company immediately prepared to resist even the contemplation of encroachment by the Hudson's Bay Company. The usual and systematic campaign of intimidation and harassment against Fidler and the company began as the "Canadians" built a watch house, cut down stockades, stole firewood, damaged fishing lines and nets and trampled through the garden.[11] But the greatest menace for Fidler was the haunting re-appearance of that formidable and malicious adversary, Samuel Black, who was now reinforced and complemented by the raw, impressionable and youthfully exuberant Peter Skene Ogden who was to earn future notoriety in the Columbia.[12] The combination of this spiteful duo with a significant superiority in North West Company manpower resulted in a second humiliation for Fidler who was as helpless in 1810 as he had been at Nottingham House, Lake Athabasca, years before.

For weeks Black strutted around the Hudson's Bay Company post in an annoying and defiant manner. He duplicated his Nottingham House performance by shrieking in the night and discharging his musket near the dwellings. On one occasion, Fidler recounted in his "Ile à la Crosse Journal" that "Mr. Black danced and jumped and hollered [sic] several times [and] made our dogs bark to disturb us."[13] Throughout this period of harassment Ogden in admiring imitation of his partner swaggered with an equal air of confidence and courted trouble by constantly handling his large dagger. In late October a violent confrontation finally erupted when "Black with a loaded Gun and 2 Pistols and Ogden with his Dagger" passed through the gates of the Hudson's Bay Company post and sauntered around the grounds. In an attempt to demonstrate a "determined firmness," Fidler challenged the pair by ordering "them both to return the same way they came and that they should not pass thro' our yard in the Insulting Manner they intended."[14]

When the command was ignored, Fidler, in uncharacteristic manner and goaded beyond control, thrashed Black several times with a stick. Ogden immediately retaliated on behalf of his friend by slashing "2 large holes in the Side and Back of [Fidler's] coat and pricked [his] Body." Black completed the counterattack by retrieving the stick and smashing Fidler's thumb. A small, curious, but passive Hudson's Bay Company crowd gathered to watch the spectacle as Fidler noted with deep chagrin that "all our men [were] looking on the whole time without giving me any assistance." The drama concluded with the departure of the smug and triumphant duo, but only after they had wished the servants of the Hudson's Bay Company "a very miserable and unhappy winter."[15]

The humiliating experience so dispirited Fidler that he remained at the post for one season only and left for the bay in the following spring. Clearly, his will to resist the continual harassment of the North West Company had been reduced to such an extent that he absolutely refused to be subjected to another long and degrading Nottingham House ordeal. The winter trade in furs had been negligible as "Mr. Black most solemnly swears that the [Hudson's Bay Company] shall not get a single skin at Isle à Cross - and that this is the resolve of their Company."[16] As at Nottingham House, the Indians were threatened, and ordered not to trade with the Hudson's Bay Company.[17] Immediately after the departure of Fidler and his men, the North West Company destroyed this vestige of the Hudson's Bay Company threat toward the Athabasca by burning the dwellings. Fidler reached the bay in June 1811 only to be unjustifiably derided by his superior, William Auld for his recent "mean and spaniel-like behaviour."[18] Tired and depressed, and having suffered through the failures of Nottingham House, Reindeer Lake and Ile à la Crosse, Fidler was granted a year's furlough in England. Although the Hudson's Bay Company continued their futile efforts to penetrate and compete in the fur trade to the Northward, Fidler never again ventured into the Athabasca region.[19]

He sailed for England in the early autumn of 1811; Mary and the children probably did not accompany him. His fidelity and concern for his Indian family were, however, more sincere than those in most marriages "à la façon du pays" which often ended with the departure of the trader from the "pays sauvage"; yet Fidler quite possibly preferred to spare his wife the social embarrassment of attempting to adapt to a new culture, and the expected racial and class prejudice of British society. In England, Fidler arranged for the building of a stone house, and he recorded that the "Money paid for new House built 1812" totalled the considerable sum of £408.10 1/2.[20] He does not state where the house was built, but later evidence suggests that the location was the Bolsover area of his birth and that the house was for the use of his mother. Undoubtedly Fidler considered the option of eventually retiring in Bolsover for he retained title to the house. Also during his stay in England his social rounds included a visit to London where he probably met Aaron Arrowsmith, the cartographer and publisher, to discuss the several maps and notes Fidler had periodically sent him from North America. By late August 1812 Fidler had returned to York Factory and was immediately transferred to Red River in the Winnipeg District.[21]

The Red River colonization scheme under the direction and inspiration of Thomas Douglas, fifth Earl of Selkirk, was the second significant objective of the New System. Selkirk was a wealthy philanthropist who possessed an abiding interest in attempting to alleviate the plight of the people in the distressed areas of Scotland and Ireland, many of whom had been dispossessed from their homes as a result of the economic and social upheaval wrought by the agricultural and industrial revolutions.[22] After experiencing earlier marginal successes in settlement ventures in Prince Edward Island and Upper Canada, Selkirk, long interested in establishing a colony "within the Territories of the Hudson's Bay Company," eventually managed to gain a controlling interest in the company stock with the assistance of a number of influential friends, including his brother-in-law Andrew Wedderburn. Following this decisive manoeuvre, Selkirk formally proposed his emigration and settlement plan to the London Committee of the company. As a result, but only after defeating a last minute but vigorous opposition by the North West Company interests in England, was Selkirk granted in June 1811 in absolute proprietorship a tract of 116,000 sq. miles of land in an area to be known as Assiniboia or Red River colony.[23]

For Wedderburn the colonization plan conveniently correlated with the economic philosophy of his New System. He was alarmed at the high costs of provisioning the company through exports from England, and although gardens, fishing and hunting at Hudson's Bay Company posts partially reduced expenses, the establishment of a colony in Rupert's Land would produce cheap "country provisions" and result in a greater degree of economic self-sufficiency.[24] To assist the settlers the company provided transportation from the bay to Assiniboia and designated Brandon House to supply stores and horses.[25] An important adjunct to the plan was that a section of the Red River colony was to be reserved for retired servants of the company, many of whom with their Indian families and long experience of living in North America had no desire to return to the British Isles. Indeed, many retired traders soon found the society at Red River a difficult transition, and although "comfortably settled [they were] apparently at a loss what to do with themselves; and sigh for the Indian Country, the squaws, and skins and savages."[26]

To the North West Company the Red River colonization scheme was a Hudson's Bay Company fur trade project. Both sides were astutely aware that the establishment of a settlement could be construed as demonstrating or confirming the Hudson's Bay Company's territorial jurisdiction in the northwest for the royal charter of 1670 proclaimed in part that Rupert's Land was to be "One of our Plantations or Colonies in America." The North West Company naturally denied the validity of the charter and recognized instead the Canada Jurisdiction Act of 1803 which vested legal authority for the "Indian Country" in the courts of Canada. But of more immediate and practical concern was the disruptive geographical placement of the colony which was not only directly in the path of the North West Company transportation and canoe routes to the northwest, but also in the midst of the hunting grounds of the Métis who provided the North West Company with buffalo pemmican, the staple and vital food of the fur trade.[27] Although the purpose of the colony was suspect, some viewing the project as merely "the romantic scheme of a nobleman," the general feeling among the North West Company partners was that the settlement was really a concealed attack on their trade, and especially against the lucrative Athabasca market. Therefore, the Selkirk colony was to be opposed at any price "for his success would strike at the very existence of our trade."[28]

In the early autumn of 1812 Peter Fidler, newly appointed as master to Brandon House, escorted the second party of Selkirk colonists to the junction of the Red and Assiniboine rivers, but he found no budding settlement. The first contingent under Governor Miles Macdonell had spent the previous winter at the makeshift "Nelson Encampment" at York Factory, and when they finally reached the Red River area, two months before the Fidler group, the season was too advanced for planting crops or building quarters. To alleviate the critical shortage of provisions the entire body of prospective settlers journeyed south to Pembina where they spent the winter and hunted buffalo which were plentiful in that region.[29] In May 1813 Fidler, using the river-lot system of Lower Canada as a general pattern, began surveying property lots along the Red River. As provisions were scarce, he also provided the colony with 60 bags of pemmican from Brandon House, and bought a bull, a cow and a heifer for the settlers as he was "very ready at all times to contribute every assistance."[30] He then departed for Norway House and York Factory. For the colonists, numerous difficulties including a drought forced them to return to Pembina for the winter of 1813-14.

The continued grave shortage of provisions at the Red River colony prompted a "Pemmican War" in 1814. Macdonell had issued proclamations in January and July prohibiting both the export of pemmican from Assiniboia, and the Métis hunting method of running the buffalo in the plains which drove this food source away from the settlement. These declarations, which threatened the traditional Métis way of life, prompted a closer alliance between the Métis, some of whom were in the employ of the North West Company, and the North West Company who were determined to ensure the failure of the colony.[31] During these months Fidler continued surveying and was also in charge of the provisions and erection of buildings for the settlement. His importance was stressed by Macdonell in a letter to Selkirk when he stated that:

> We require to have a permanent surveyor who will keep a regular office and Mr. Fidler might answer the purpose. His Indian family is some objection to him. He is far from being a well polished man and is not well liked by the people but I think him a well meaning man. I set off tomorrow for York [Factory]. Mr. Fidler takes charge of matters here until my return.[32]

The apparent unpopularity of Fidler, who was viewed as a gruff old character at Red River, was a result of his "irrascible disposition," probably the result of his long and gruelling service on behalf of the company, and his intolerance of the helplessness of the immigrant newcomers.[33] The reference to his "Indian family" was typical of the social stigma attached to mixed marriages in the burgeoning society of Red River colony. Even the prominent Colin Robertson could not attain social acceptance in the settlement because of his Métis wife Theresa who was considered a "bit of Brown" hoping to "pick up a few English manners before visiting the civilized world; but it would not do -."[34] Mary, Fidler's Indian wife, was even lower in the graded social order. Only after years of social and cultural interaction at Red River did these prejudices dissipate.[35]

By the summer of 1815 the North West Company and the Métis had developed a campaign of harassment and intimidation against the settlement. The Métis buffalo hunters were a superb paramilitary cavalry force and proudly regarded themselves as a "New Nation" who possessed a valid title to the land through their Indian mothers. These spirited and semi-nomadic people provided the physical menace to the colonists on behalf of the North West Company. The demoralizing terror tactics caused frequent desertions, and in an effort to spare the colony, Macdonell surrendered to a North West Company partner and departed for Canada under arrest. His successor was a reluctant Peter Fidler who attempted to effect a conciliation with the Métis by promising that "peace and amity shall hereafter ever exist between the people of this Settlement and the Half Breeds and that all that has been done on both sides shall be foregiven."[36] Other concessions such as "the full liberty of running Buffalo and living according to the [traditional] custom" were also included. These "Proposals of Peace" were rejected by the Métis who countered by ordering "All settlers to retire immediately from this river, and no appearance of a colony to remain."[37] Fidler had no choice and on 25 June signed a dictated treaty which asserted Métis rights, and achieved the aims of the North West Company. Assured that "Every person retiring peaceable from this river immediately shall not be molested in their passage out,"[38] Fidler mustered the settlers at the boats and abandoned the colony. The jubilant Métis completed the work of destruction by burning the cabins and trampling through the crops. But at the north end of Lake Winnipeg the retreating settlers met the redoubtable Colin Robertson with reinforcements. He persuaded the settlers to return as he realized that the restoration of the colony was a vital part of his Athabasca plans. With difficulty the colony was re-established during the winter, and in the following spring, in order to both consolidate the position of the settlement and assist in his Athabasca plans, Robertson seized Fort Gibraltar, the North West Company post at the forks of the Red and Assiniboine rivers through which the pemmican supply canoes destined for the Athabasca had to pass.[39] In early June, Robertson left for York Factory.

The successes of Robertson spurred the impulsive and high-spirited Métis into retaliatory actions in June 1816. Brandon House, where Peter Fidler as master had wintered, was sacked. Fidler, a veteran of harassment and plunder, described the attack in detail noting that "At 1/2 past noon about 48 Half Breeds, Canadians, Freemen and Indians came all riding on Horseback, with their Flag flying blue...one Beating an Indian Drum, and many of them singing Indian Songs..."; after pausing at the river "they all turned suddenly round and rode full speed into our Yard." Following an argument in which Fidler refused to deliver the keys "they then rushed into the House and broke open the warehouse Door [and] plundered the Warehouse of every article it contained." In addition to stealing private property, the Métis "took away every horse belonging to the Company and European Servants." They told Fidler that "it was Mr. Robertson's fault they had plundered our House - for taking their Fort at the forks...."[40]

Two weeks later the Métis attempted a detour around the forks with pemmican for the North West Company canoe brigades, but their journey was intercepted by Robert Semple, the new governor of Rupert's Land, and a group of settlers. A violent collision took place, on the "Frog Plain" at Seven Oaks in which Semple and about 20 of his men were killed. Within three days the surviving settlers had abandoned the colony. Fidler detailed these events in his "Narrative of the Re-establishment, Progress and Total Destruction of the colony in Red River, 1816"; and in a map entitled "A Plan of the Route pursued by the Halfbreeds and other servants of the North West Company on the 19 June 1816 according to the information of Antoine Decharme who drove one of their two Carts on that occasion, and referred to in the affidavit of Peter Fidler of the 4th of August 1817 - signed P. Fidler."[41] In time these accounts proved useful in clarifying details of events at Red River colony and in implicating the North West Company.

Selkirk responded immediately to the so-called Seven Oaks Massacre by capturing the North West Company headquarters at Fort William with a group of discharged Swiss and German soldiers of the de Meuron regiment, veterans of European battlefields and the War of 1812. By the following summer he had established the colony once again, and in spite of further difficulties, the settlement became permanently viable.[42] About the same time Robertson led an imposing force of more than 180 officers and men with 27 canoes against the North West Company in the Athabasca.[43] Although this ambitious venture failed, the effort clearly demonstrated the strength and new determination of the Hudson's Bay Company in defeating their fur trade rivals. The campaign contrasted sharply with earlier efforts, and in particular with that of Peter Fidler at Nottingham House when he faced a hopeless challenge with his pitifully small force coupled with no support from the company. The resolute and vigorous endeavours by Selkirk and Robertson put a great financial strain on the already over-extended resources of the North West Company, and although Lady Selkirk wrote that "the enemy has got a bruise but he is not crushed yet,"[44] a compromise to the mutual benefit of both fur trade organizations was becoming an increasingly obvious solution.

Between 1816 and 1821 Peter Fidler lived an uneventful life at the Hudson's Bay Company posts of Brandon House and Dauphin House, where he conducted the normal business of a fur trader. At Brandon House the traders and clerks found him arbitrary and headstrong.[45] In addition to his fur trade duties, Fidler continued to play an active role for a while at Red River, and in the summer of 1817 he surveyed more lots for the settlement along the Red and Assiniboine rivers. After spending three years at Brandon House, Fidler became master at Dauphin House in September 1819. The surroundings were pleasant and peaceful, and fish and meat plentiful, but the tired and prematurely aging trader noted in his post journal on 3 November that "I find myself were unwell this day."[46] Throughout the winter of 1819-20 Fidler was sick with "some affliction or disorder in the head," and he quite probably suffered a stroke during this time.[47] His excessive brandy and rum drinking, a popular weakness among the traders, only complicated his physical deterioration.[48] In the following summer he journeyed to York Factory but returned to Dauphin House for the winter where, although snug in his quarters with his family, library, well-stocked root cellar, amidst little North West Company opposition, he became plagued with "Palsy."[49] By the summer the painful paralysis and other gnawing infirmities had considerably weakened his body and spirit.

In failing state, Fidler travelled to Norway House in August 1821 where he was informed that he was soon to be pensioned. By the amalgamation agreement of 21 March of that year a practical coalition was negotiated in which the "whole Fur Trade [was to be united] into one Concern, to be from the 1st day of June next carried on solely by and in the name of the Hudson's Bay Company."[50] Nicholas Garry, because he was "the only single Man" among the company's governing body, was sent to Rupert's Land to oversee the necessary operational adjustments of the new concern. His mission was also one of conciliation owing to the sensitive nature of the Deed Poll, an integral part of the re-organization which named those traders from the old wintering partners of the North West Company, and the field officers of the Hudson's Bay Company who were to be retained.[51] Although Garry respectfully acknowledged the long and worthy service of Fidler, and urged that the maps of the renowned cartographer "at York Factory should be sent to England" for publication and posterity, the essence of the meeting between the two men was that Fidler "shall have a retired share."[52] Ironically his old adversary Samuel Black, "notorious by his violent and outrageous conduct against the H.B. Coy,"[53] was eventually admitted to the new concern and was promoted within three years to chief trader in the Hudson's Bay Company, and with his friend Ogden enjoyed a successful fur trade career in the Columbia Department of the Pacific. Nonetheless, for Fidler and the Hudson's Bay Company, their long and bitterly contested struggle for the Athabasca prize was finally secured, and Fort Chipewyan became the depot for the company in that region.

Within a week of his unhappy Norway House meeting, Fidler formally married and prepared his will. His church marriage suggests that in part he was influenced by the moral philosophy of Garry, who was appalled at the traditional practices in the Indian country and in particular with marriage "à la façon du pays," which he considered as largely contributing to the "Debasement of Mind."[54] Garry fully supported the official Hudson's Bay Company policy of attempting to establish acceptable Christian standards in fur trade life, and hoped that through "civilization and moral improvement" the traders and their Indian families attached to the various posts and in the settlement at Red River would embrace the more refined social and religious conventions of European society.[55] One result of this thinking was that on 14 August 1821 "Peter Fidler of Manitobah, and Mary, an Indian Woman of the same place, were married at Norway House in the presence of Nicholas Garry...."[56] Other considerations for the church marriage must, however, be considered. One possible calculation by Fidler was that the ceremony, which pleased Garry, might in time induce the director to reconsider retiring the trader. More probably, was that the practical mind of Fidler understood that the formal marriage combined with his will would ensure a sound legal standing for Mary and his many children and provide for their future financial security.

The will of Peter Fidler, dated on his birthday, was an extraordinary document and illustrated the significant material wealth accumulated by the man over many years in the northwest, his astute, if eccentric mind and a possible desire for posthumous notoriety. The following synopsis both paraphrases and categorizes -

The Will of Peter Fidler
Norway House
16 August 1821.

1) Requests that he be buried in the Red River settlement.

2) His post journals and vellum (parchment) bound books, being a fair copy of the narrative of his journeys,

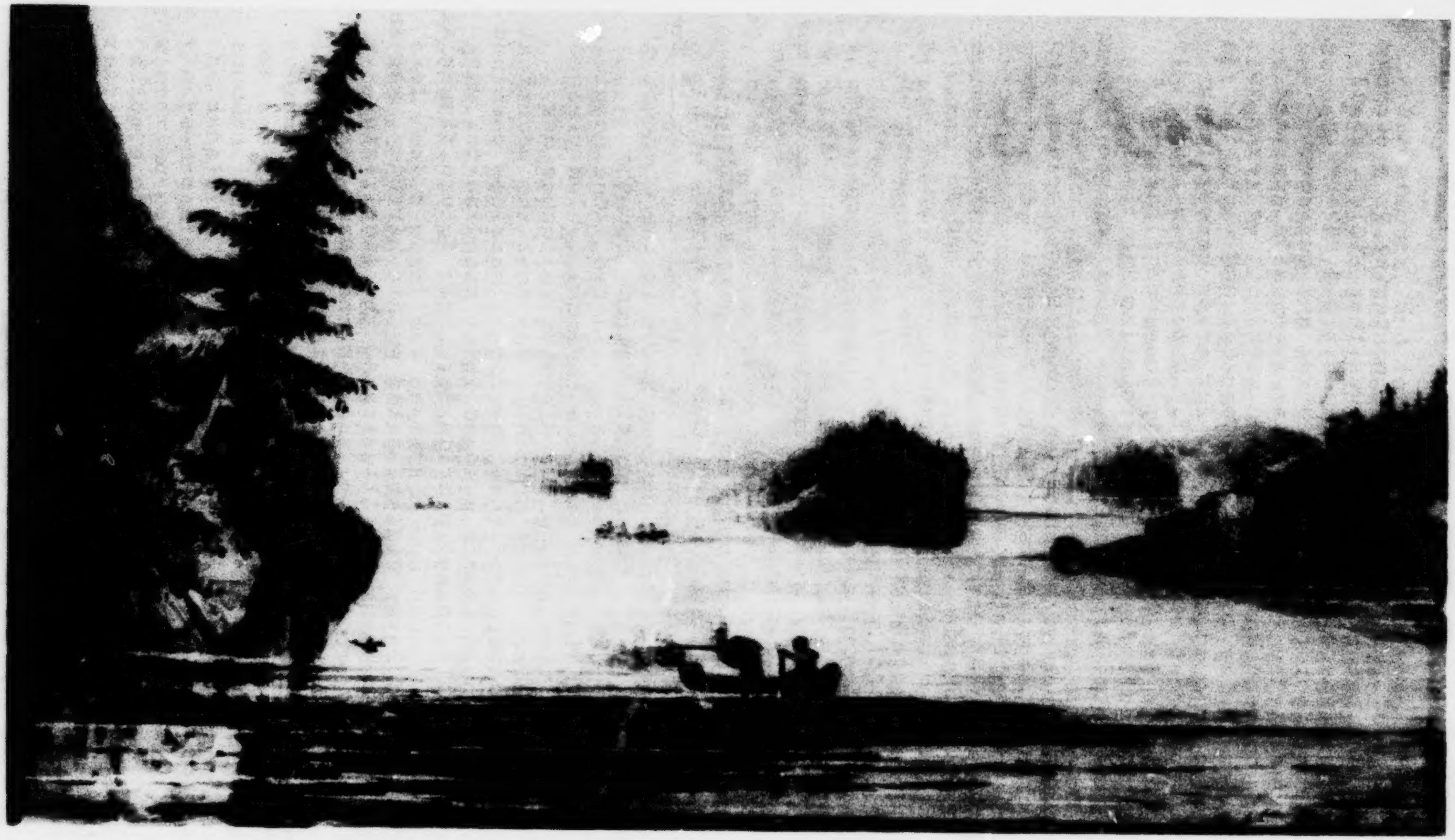


Figure 3. Lake Athabasca ca. 1824. (Public Archives of Canada, Picture Division, C1525.)

as well as his surveying instruments and manuscript maps, to be given to the committee of the Hudson's Bay Company.

3) The books indicated above and his printed maps, globes, a telescope, microscope, brass sextant, barometer and all his thermometers were to be kept at the Red River settlement for the general use of the Selkirk colonists.

4) The cattle, swine and poultry he had purchased for £100 were to be left for the sole use of the colony, but if any of his children were to ask for a pair of the aforesaid animals or fowls their request was to be granted.

5) To his Indian wife, Mary Fidler, he bequeathed £15 a year for life to be paid to her in goods from the Hudson's Bay Company store, and to be charged against his interest account in the hands of the company.

6) The interest on all the rest of the money belonging to or owing him was to be divided among his children according to their needs.

7) The residue of his estate was to be disposed thus: "All my money in the funds and other personal property after the youngest child has attained twenty-one years of age, to be placed in the public funds, and the interest annually due to be added to the capital and continue so until August 16, 1969 (I being born on that day two hundred years before), when the whole amount of the principal and interest so accumulated I will and desire to be then placed at the disposal fo the next male child heir in direct descent from my son Peter Fidler...."

He concluded by leaving his "Copyhold land and new house situated in the town of Bolsover, in the county of Derby [shire], "after the death of his mother, Mary Fidler, to his youngest son, Peter.[57]

Following his marriage and the preparation of his will, Fidler wrote Garry a pleading letter reminding him of his long service and asking that he might be allowed to continue "as an Indian Trader at any small post you may think proper to appoint me."[58] Garry relented, postponed the retirement, and returned the aging and sick Fidler to Dauphin House where with his books and garden, he was given the nominal rank of a clerk at his old salary of £100 per year. He remained quietly at this post. In the York Factory list of servants for the winter of 1821-22, he was described as "a faithful and interested old servant, now super-annuated, has had a recent paralitic affection and his resolution quite gone, unfit for any charge."[59] He lingered in this condition at Dauphin House where on 17 December 1822, he died.

The complexities of the will, and in particular clause seven, caused problems. George Simpson, governor of the Northern Department, commented that the will bore "evidence of the weak or eccentric state of mind in which [Fidler] must have been at the time of making it, and I apprehend there will be some difficulty in the disposition of his property."[60] Mary and the children were allowed limited advances initially, and beginning in 1825 they were provided with goods to the amount of £ 25 annually "which they will consider a very handsome pension."[61] Mary Fidler died and was buried at Red River settlement on 20 June 1826 aged about 55 years.[62] Her death apparently threw the three named executors, all Hudson's Bay Company officials, into a frustrated despair over dealing with clause seven, and they renounced their trusteeship. In 1827 the administration of the estate was granted to Thomas Fidler, the eldest son. The following year the money, which had been left in the protection of the Hudson's Bay Company and which amounted to nearly £2000, was divided equally among the 11 surviving children. The courts seemingly set aside the provision whereby the residue of the estate was to accumulate until 1969, for in spite of periodic diligent search, no trace of the money could be found in the Hudson's Bay Company or Bank of England accounts.[63] In August of that year no heir or claimant appeared to collect the supposed fortune.

Throughout his long and remarkable career, Peter Fidler was a serious, dedicated and loyal servant of the Hudson's Bay Company. His meticulous recording in his several post journals, personal notebooks and journey accounts, reflected his zeal for writing, education and knowledge, which is understandable as early in his career he was regarded as "a good Scholar and Accountant." He was a conscientious student all his life, and his learning and knowledge, which he acquired in the northwest were self-taught. His library collection included such titles as *Sir Jonas Moor's Mathematicks*, *The Theory and Practice of finding the Longitude at sea or land*, by And. W. Mackay, *The Nautical Almanac*, *The Diary Companion*, *The Gentlemen's Diary, or the Mathematical Repository*, and the *Monthly Magazine*. Most of these works reflected his desire to refine his professional skills as surveyor. Yet his inquisitive mind also probed into such subjects as algebraic formulae, meteorological observations, post longitudes and latitudes, geographic distances, life duration of various wild animals, total population of the earth according to religion and Indian tribal customs and languages. Indeed his detailed post journals and notebooks provide a valuable record of life and adventures in the northwest during the era of the fur trade rivalry. Particularly illuminating are his "Journal of a Journey with the Chipawyans..." to the (Great) Slave Lake during the winter of 1791-92, his first personal account which showed the stamina, physical toughness and eagerness of this man. It proved that he was "a very fit hand for the Country" and could stand cold weather, hunger and the Indian diet. His "Journal of a Journey Over Land...to the Rocky Mountains in 1792 and 93" included graphic descriptions of Blackfoot life and was the first known written account of the Kootenay mountain people; his "Nottingham House Post Journals" of 1802-1806 represented the Athabasca adventure as a microcosm of the bitter North West Company - Hudson's Bay Company fur trade rivalry; and his "Narrative...of the Colony in Red River, 1816," vividly detailed the settlement's early struggle for survival.

As a result of his penchant for study and learning, Fidler assumed a rather didactic manner, particularly in his later years at Red River where he was considered somewhat of an eccentric prig by the settlers. His character was undoubtedly molded by the past ordeals and hardships he had endured in the service of the company. Although distinguished, Fidler's career was marred by ill luck. At Nottingham House, a hopeless situation, he reacted to the harassment, intimidation and overwhelming superiority in numbers of the North West Company in a controlled, practical, yet determined manner, and only capitulated when the Athabasca adventure was obviously lost, as the trade in furs was non-existent. His usual sober composure escaped him only once, at Ile à la Crosse, and in recognition of this new found boldness, his thumb was promptly and savagely smashed. Brandon House was sacked while he was master, and as nominal leader he was chased from the Red River settlement, only to be returned by the more aggressive Colin Robertson. These apparent failures, are all excusable, yet Fidler appeared to lack dash and spirited leadership, with the result that he was not always fully supported by his followers in critical situations. For his Indian family he possessed a genuine affection. His union with Mary produced 14 children of whom 11 were alive in 1822. His Indian wife accompanied him on most of his journeys and postings and shared the hardships and joys of a fur trader's life. Fidler showed a dutiful interest in his children, and in one of his notebooks which served as a family register, he entered the name, place, year, day, hour, even minute of each birth. He occasionally commented on individual children and noted that "Thomas very handy, rather addicted to rum, George active, a Moose hunter"; Sally had elevated her social status by sharing the bed of Governor Williams of the Southern Department. Yet the most significant and lasting contribution of Fidler was his surveying and map making. His meticulously drawn maps, which covered geographic areas from Hudson Bay to Lake Athabasca and the Rocky Mountains, as well as his lot surveys at Red River, are testimonies to his dedication and competence. With the renewed interest in exploration and fur trade history, and the more readily accessible manuscripts and research material now available, Peter Fidler will assuredly no longer be considered merely "Canada's Forgotten Surveyor."

APPENDIX A. THE FISHERIES AT NOTTINGHAM HOUSE, 1802-1806: A BRIEF LOOK

With the return of Peter Fidler and a Hudson's Bay Company contingent to Lake Athabasca in 1802, the basic problem of food became of paramount importance. Initially Fidler hoped to obtain sufficient foods from his provision post of Mansfield House on the Peace River under Thomas Swain. But this idea proved unsuccessful as Swain encountered constant difficulties with the North West Company employees who intimidated and successfully threatened the Indians against trading with the Hudson's Bay Company. By January 1803, the men at the provision post were starving and were forced to return to Nottingham House. In addition, Fidler had hoped to conduct a reasonable trade in foods with the Indians in the Athabasca area, and indeed he occasionally noted in his journal that he traded for moose meat or for ducks and geese. But during the long and bitterly cold winter months, the Indians themselves were often in a state of semi-starvation, and very few appeared at the post to trade food. As a consequence, although Fidler had originally ventured to Lake Athabasca to acquire furs, the more fundamental question of subsistence soon became a priority.

Although Fidler took provisions to Lake Athabasca, his food supplies had to be supplemented extensively by meat or fish caught in the area; and before too long the Fidler group became utterly dependent on fish as a staple to their diet. Two nets were set the day Fidler arrived in September 1802, and a few fish, particularly tickameg (whitefish), were caught.[1] A fall fishery was soon established about one mile from Fidler's post. Each day the nets were lifted for fish and for repairs. Two more nets were made, and by November, 1000 fish of many varieties had been caught, although many were the unpalatable suckers.[2] As the weather turned cold, ice floes in the lake prevented fishing until the lake became frozen. With the freeze up, one net was placed under the ice, and several men, designated solely as fishermen, were sent with three more nets to Old Fort Point "as that is the most plentiful place...."[3] The advantages were soon apparent as enough fish were caught to last three months.[4] With this success, the fishermen were ordered back to Nottingham House. One man was left at Old Fort Point to guard the fish against passing Indians and the famished wolves and packs of half-wild Indian dogs in the area.

At Nottingham House a fish shed was built during the winter and three men were despatched to Old Fort Point for the unenviable task of hauling the fish across the frozen lake for storage in the new fish shed. As the men had been fishing every day, the total number of fish caught was impressive: tickameg 440, jack [fish] 200, perch 150, suckers 680.[5] By the early winter of 1803, the Fidler group was utterly dependent on fish as the staple of their diet. Men continued to fish every day, and nine were sent to Big Island (Bustard Island which was about ten miles across the lake to the northeast of Nottingham House). The trade in furs was a grave disappointment, and as the bitterly harsh and lonely days of an Athabasca winter dragged by, with chilling winds sweeping snow over the frozen lake, the men continued the monotonous routine of fishing and surviving on their catch. At one point Fidler was worried that there would not be sufficient fish for the spring trip to Ile à la Crosse and Cumberland House, and this feat was compounded when wolves broke into the fish house on Big Island and devoured a quantity of frozen fish. But Fidler's fears were unfounded, as the fishing remained constant, and by mid-April there were 1287 tickameg stored in the fish shed at Nottingham House.[6] The fish were dried for provisions, and on 19 May Fidler and nine men embarked for Cumberland House with three canoes, each loaded with 160 pounds of dried fish. For the Hudson's Bay Company men, the winter of 1802-1803 at Lake Athabasca had been an adventure. The trade in furs was poor, but they had managed to get by on the success of their fishing. For the Fidler group the fishery became the keystone for survival in the Athabasca fur trade.

When Fidler returned to Nottingham House in September 1803, he found a scant ten pounds of dry fish of poor quality in the fish shed.[7] Clearly, the summer fishery had been a failure. The men left behind had lived in a tent and had fished around the post and at Big Rock, about four miles away. The situation became critical by the end of September as there was fish sufficient for only one meal per day for each man.[8] To remedy this shortage and to prepare for the coming winter, Fidler established the fall fishery at Goose Island which was much closer to Nottingham House. However, the waters around Goose Island proved too shallow for good fishing, and Fidler was forced to transfer the fishery to Fishing Island (Burntwood Island) which was nearly 20 miles away from the post. Apparently Fidler did not return to Old Fort Point because of the presence of the North West Company people there, whose harassment of Fidler's men had intimidated them. The North West Company used every means "fair or foul" to disrupt Fidler from establishing a foothold in the fur trade of the Athabasca region, and one of the most effective methods of discouraging them, short of overt violence, was to starve the Hudson's Bay Company group into submission or abandonment. But Fidler's fishermen managed to keep the group alive, and although the diet was monotonous, they managed.

As the weather turned increasingly cold, the fishermen at Fishing Island, who had been living in a tent, wisely decided to build a small house which provided more warmth and comfort against the severe climate of the area. Six nets were placed under the ice, and the remaining equipment on Goose Island was carried across the ice to the small house by the dogs and sledges of Nottingham House.[9] For the remainder of the winter of 1804 the fishing was good, and by early March enough fish had been stored to last until the spring. In May Fidler embarked for Cumberland House to get supplies and goods for the third winter in the Athabasca Country.

Upon his return in September 1804, he was disappointed to find that again the summer fishery had been unsuccessful. The two designated fishermen left behind had caught few fish at Big Rock. Undaunted, Fidler attempted to establish the fall fishery once more at Goose Island, which was much closer to Nottingham House than Fishing Island. Three men hastily constructed a small house for the fishermen. The fall fishery around Goose Island was surprisingly good compared to the previous season, and in December Fidler despatched the dogs and sledges across the ice to transfer the large quantity of fish back to Nottingham House. The Goose Island fishery was then abandoned. Fishing Island, however, remained open, and fishing continued there. Fidler's designated fishermen had performed their task well. The staple fish diet was perhaps not always palatable, but it did provide sufficient nourishment for the men during the cold and bleak winter months. Indeed, 3000 fish had been caught, which was considered most fortunate, "while our neighbours are barely hand to mouth particularly the Old Co. [North West Company] whom we cannot sincerely pity."[10] In early April all the men remaining at Fishing Island returned to Nottingham House. The Hudson's Bay Company post had 2000 fish in stock which was still ample. The North West Company, which had ten times the number of men to feed had fewer than 1000 fish, and the XY Company had a dangerously low 150 fish in storage.[11]

As usual the fishery during the summer of 1805 was disappointing. When Fidler returned in September he noted that there were few furs and no provisions.[12] He quickly established the fall and winter fisheries at both Goose and Fishing islands, and the fishermen began to catch fish every day. Whitefish were particularly common in the winter; and in the spring, trout were caught in abundance in the shallow waters close to shore. Fishing Island was abandoned for the open waters of Lake Athabasca once the weather became pleasant, and the wind calm. In June 1806, however, Fidler abandoned Nottingham House and never returned. The harassing tactics of the North West Company were becoming increasingly violent, and the Hudson's Bay Company men refused to be subjected to these bullying methods any longer. In four years, Fidler had failed to make inroads into the fur trade monopoly of the North West Company in the Athabasca region. The few men Fidler had were no match for the far more numerous and boisterous voyageurs and post employees of their competitors. In four years the only positive result of the Hudson's Bay Company effort to compete in the fur trade of the Athabasca area was the success of the fisheries, which allowed them to survive more tolerably during the winter months than their rivals in the North West Company, some of whom died of starvation.

Summation

Winter One, 1802-1803

September, a fishery established with two nets, one mile from Nottingham House (English Island). By November, 1000 fish caught, most tickameg and suckers. November, Fishery established at Old Fort Point with three nets, 15 miles from Nottingham House. December, Old Fort Point abandoned, but enough fish had been caught to last until the spring. Mainly suckers, 680.

Early 1803, nine men sent to Big Island (Bustard Island) which was ten miles from Nottingham House.

Summer 1803, very poor fishing around the post of Nottingham House, and at Big Rock, four miles away.

Winter Two, 1803-1804

Autumn, fishery established at Goose Island, about seven miles from Nottingham House (Fidler says 12 miles). Waters proved too shallow for good fishing, so fisheries transferred to Fishing Island (Burntwood Island) which was about 20 miles away. Goose Island abandoned. Six nets used at Fishing Island, and enough fish caught by early winter of 1804 to last until the spring.

Summer 1804, poor summer fishing at Big Rock.

Winter Three, 1804-1805

September, fishery established once again at Goose Island. This season fishing was very good in this area.

After a successful fishing season, Goose Island again abandoned. Fishing Island remained open until the spring. Number of fish caught, 3000.

Winter Four, 1805-1806

September, fall and winter fisheries established at both Goose and Fishing islands. The season was adequate, and when the weather became pleasant and the ice cleared, Fishing Island was vacated for the open waters of Lake Athabasca. May-June 1806, the fishing was generally successful until Peter Fidler abandoned the area.

Fishing Equipment List, 1804.[13]

New nets	2
Old nets	3
Narrow chisels	2
File	1
Fine twine	1 skein
Cut coarse twine	7
Deer skin coats	2
Tracking line	1
Fren (?) coats for dog traces	2
Moose skins, 1 each	1
Old sail	1
Old leather for sticks and stones	1 piece
K user (?)	1 bundle
Coarse twine	1 hand
Hausline twine the other men sent	1

Other items such as hauling lines are additional possibilities, so this list is undoubtedly not complete.

APPENDIX B. INVENTORY OF TRADING GOODS AT NOTTINGHAM HOUSE, 1803
(HBCA, PAM, B.39/a/2, fol. 65-68)

Trading Goods		Received	Leakage Wastage	General Charge*	Sent to Moosefield House		Men's Debts		Provisions Correspondence		Presents to Natives		Traded		Remains	
					Quant.	Value*	Quant.	Value*	Quant.	Value*	Quant.	Value*	Quant.	Value*	Quant.	Value*
Awl blades	No.	120		5	60	2 1/2					12	1/2			48	2
Baize blue																
green																
Bayonets flat		12		6					2	1	4	2	6	3		
Beads blue common	lbs.	4 3/4		6 1/3	1 3/4	2 1/3			1	1 1/3	1 1/4	1 2/3	3/4	1		
fine white		3		6	1 1/2	3			1/2	1			1	2		
Bells hawk																
Basons pewter																
Blankets of 2 1/2 pt.	No.	36		83	16	40	2	5	1	2 1/2	1	2 1/2	1	2 1/2	13	32 1/2
3		25		75	15	45	2	6	2	6	1	3	2	6	3	9
large green striped		5		30	1	6			1	6	1	6	1	6	1	6
Bands pr wrist plated	pr.	12		12	6	6									6	6
Buttons coat	gross	2		2	1	1					2/3	2/3			1/3	1/3
waist		2		2	1	1					2/3	2/3			1/3	1/3
Boxes Tob. Japd.	No.	8		4	4	2			1	1/2			2	1	1	1/2
iron		4		2	2	1					1	1/2			1	1/2
Brandy high	gallons	86 9/10	4 1/4													
Callico printed				(82 5/16) 493 7/8	45 3/16	271 1/8			12	72	10 5/16	61 7/8	7	42	7 13/16	46 7/8
Chisels Ice broad	No.	20		10	10	5							1	1/2	9	4 1/2
narrow		20		10	10	5			4	2	2	1	4	2		
Combs horn lge		24		6	24	6										
dressing		12		3							2	1/2			10	2 1/2
ivory		48		12	24	6			4	1	5	1 1/4			15	3 3/4
Collars brass																
Cloth blue cord	yds.	104 1/4		208 1/2	57 3/4	115 1/2			8	16	13	26	11	22	14 1/2	29
common																
fine light		2 1/2		5	2 1/2	5										
green cord		45		90	11	22	1/2	1	12	24	7	14	9	18	5 1/2	11
red cord																
fine																
yellow fine		1		3	1	3										
Duffle		24		32	12	16	1 3/4	2 1/3	1	1 1/3	2	2 2/3	3/4	1	6 1/2	8 2/3
Files flatt	No.	60		30	24	12			3	1 1/2	2	1	4	2	27	13 1/2
Feathers worsted		14		7	7	3 1/2					2	1			5	2 1/2
cock & hen																
ostrich																
Flannel																
Flints		1000		50	500	25			40	2	60	3			400	20
Frocks duck		4		6	1	1 1/2					3		3	4 1/2		
Gartering		504		28	288	16			90	5	72	4	54	3		
Glasses look black book		36		18	12	6			2	1	3	1 1/2			19	9 1/2
oval gilt		12		12	6	6					1	1			5	5
burning		66		33	36	18			2	1	4	2			24	12
Guns of 3 1/2 feet		20		220	9	99			2	22	2	22	3	33	4	44
3 do.		20	2 cracked (18)	180	12	120			1	10	2	20	1	10	2	20
4 ft.																
Hooks fish		260		13					40	2					220	11
Handkfs silk lge																
small		12		12	6	6					3	3			3	3
scoese		2		2	2	2										
linen		4		4	2	2					2	2				
Hatchets oval		96		48	48	24			4	4	4	2	6	3	34	17
Hats common		10		10	5	5					3	3			2	2
Jackets white																
Knives butcher	No.	240		30	120	15			3	3/8			12	1 1/2	105	13 1/8
clasp best		72		9	36	4 1/2			12	1 1/2	8	1	4	1/2	12	1 1/2
common		24		3	24	3										
desert		72		9	36	4 1/2					2	1/4	12	1 1/2	22	2 3/4
lge long		144		18	72	9					8	1	8	1	56	7
two blades		4		1/2	4	1/2										
yew handle																
Kettles copper of 5 galls.	No.	1 lb 5														
4 1/2 do		3 13 1/2		13 1/2	3..13 1/2	13 1/2										
3 1/2 do		1 4														
2 1/2 do		4 11 1/2		11 1/2	2...5 3/4	5 3/4									2..5 3/4	5 3/4
1 1/2 do		4 9		9	2...4 1/2	4 1/2	1.2	2							1..2 1/2	2 1/2
1 do		8 13 3/4		13 3/4	4...7	7					1.1 1/2	1 1/2			3..5 1/4	5 1/4
1/2 do		4 4 1/2		4 1/2	2...2 1/4	2 1/4					1.1	1	1.1 1/4	1 1/4		
Lace orrice white & yellow																
Lines net		40		20					10	5					30	15
Needles brown thread		100		4 1/6	50	2 1/12			18	3/4	6	1/4	2	1/12	24	1
glover		200		8 1/3	100	4 1/6			28	1 1/6	46	2			24	1
quilting		200		8 1/3	100	4 1/6			48	2	28	1 1/6			24	1
Powder	lb.	402		268	204 1/2	136 1/3			33	21 1/3	38	25 1/3	18	12	109 1/2	73
Pans tin	No.	2		2	2	2										
Pots Japd. 1 qt.																
1 pt.		4		2	3	1 1/2					1	1/2				
1/2 pt.																
Pistols																
Pipes	Doz.	4		4/5	4	4/5										
Rings seal	No.	144		6	72	3			18	3/4	18	3/4			36	. 1/2
Sashes		6		3	3	1 1/2					3	1 1/2				
Scrapers																
Stockings yarn	pr.	8		4	4	2					2	1			2	1
Shoes																
Shot low India	lbs.	168		33 3/5	112	22 2/5			5	1	11	2 1/5	10	2	30	6
duck		168		33 3/5	56	11 1/5			2	2/5	3	1	15	3	90	18
Bristol		168		33 3/5	56	11 1/5			17	3 2/5	43	9	15	3	35	7
Spoons iron	No.	18		3	12	2					6	1				
Steels fire		168		21	96	12			16	2	18	2 1/4			38	4 3/4
Shirts Calico for adults																
youth		2		4	2	4										
infant																
Cotton																
Checkt common		8		12	4	6			1	1 1/2	3	4 1/2				
White Do																
Soap	lbs.	4 1/4		1 5/12	4 1/4	1 5/12										
Thread blue		1/8		1/4	1/8	1/4										
green		1		2	1/2	1									1/2	1
red		1/16		1/8	1/16	1/8										
all Colours		2		4	1	2			3/4	1 1/2					1/4	1'2
Tob. Spencers twist		349(3/4)		233 1/6	182 3/4	121 5/6	9 1/2	6 1/3	18	12	26	17 1/3	24	16	89 1/2	59 2/3
Roll		3		2	3	2										
Brasil		165		110	80	53 1/3			9	6	10	6 2/3	3	2	63	42
Cott																
Twine fine	skeins	80		80	1	1			24	24			5	5	50	30
Jack		12		12											12	12
Sturgeon																
Trousers Duck																
Cotton																
Vermillion	lbs.	3		24	1 1/2	12					1/4	2			1 1/4	16
Worms Gun barrel	No.	144		12	72	6			8	2/3	23	1 5/6			42	3 1/2
Sugar loaf	lbs.	20 1/4		6 3/4	20 1/4	6 3/4										

* In "Made Beaver."

APPENDIX C. INVENTORY OF HOUSE, COOPER, CARPENTER'S STORES, ETC., AT NOTTINGHAM HOUSE, 1803 (HBCA, PAM, B.39/a/2, fol. 69)

		Received as per invoice	Sent to Mansfield House	Expended	Remains
Augers of 2 inches	No.	1			1
1 1/2 do.		2	1		1
1 do.		2	1		1
Adzes		2	1		1
Brimstone	lbs.	1	1/2	1/2	
Cotton	balls	3	3		
Compasses	prs.	2	1		1
Chissels of sorts	No.	4	2		2
Cocks brass		3	2		1
Flags House		2	1		1
Indian		1			1
Files pit saw		8	4	3	1
X cutt		6	3	3	
hand saw		4	2	2	
Gouge					
Goose for Tailor					
Gimblets spike		4	2		2
small		2	1	1	
Hatchets falling		16	9	7	
Hooks & hinges	prs.	6	3	1	2
Hammers claw	No.	2	1	1	
Hasps & staples		2	1		1
Inshaves for cooper 0					
Ink powders	papers	2	1	1	
Knife drawing	No.	2	1		1
pen		1	1	1	
Knives & forks	pr.	6	3		3
Kettle cooking of 5 gall.	No.	1			1
of 3 1/2 gall.		1			1
Lines tracking	No.	2		2	
chalk		2	1	1	
Locks pad		1	1		
cabbin door		1			1
stock		2	1		1
Guns hunting. 2 - being trading ones, but can not trade, stock shattered on the Passage					
Lock cupboard	No.	1	1		
Medicines		some	some	some	some
Nails 10dy Clasp	No.	708	400	308	
Okar red	lbs.	1 1/2	1/2	1	
Paper writing Com	Quire	7	3	4	
Demy		2		2	
Books Marble covered of	2 Quire	2	1	1	
	1 do.	2	1	1	
	3/4 do.	4	2	2	
Pan frying	No.	1		1	
Planes Jack		2	1	1	
smoothing					
irons		2	1		1
Plows	pr.	2	1		1
Picks	No.	3	1		
Pincers	pr.	2	1		1
Plates tin	No.	12	6		6
Pots Japd 1 qt.		2	1	1	
1 pt.		2	1	1	
1/2 do.		1	1		
Rivets iron		100	50	20	30
Seeds for garden		some	some	some	some
Spade	No.	1			1
Saws hand		2	1		1
turning		1			1
X cutt		2	1		1
pitt		2	1		1
Steelyards of 260 and 120 pounds	pr.	2	1		1
Vittery for Table Cloths	yds.	8	4	4	
Vice hand	pr.	1	1		
table		1			
Wax sealing	sticks	5	2	3	
Wire iron		some		all	
Tap borers	No.	2	1		1

ENDNOTES

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9 J. Parker, "The Fur Trade and the Chipewyan Indian," The Western Canadian Journal of Anthropology, Vol. 3, No. 1 (1972), p. 43.

10 Ibid., pp. 48, 51; G.C. Davidson, The Northwest Company (New York: Russell and Russell, 1918), p. 91; and R.A. Pendergast, "The XY Company, 1798-1804," Ph.D. Thesis, University of Ottawa, 1957: Expenditures of Rum and Spirits of all kinds with the Indians and Servants of the NW Co. in the Fur Trade,

1793-1808 -
1793-1798 - 9,600 gals
1799-1801 - 10,272 gals.
1802-1804 - 14,439 gals.
1805-1808 - 10,700 gals.

[Note the significant reduction of alcohol after 1804 when the NW Co. and XY Co. united, and when the situation of Peter Fidler at Nottingham House had become untenable.].

11 HBCA, MG20, B/39/a/1, op. cit., 26 September 1802; see also, E.E. Rich, "Trade Habits and Economic Motivation Among the Indians of North America," *The Canadian Journal of Economics and Political Science, Vol.* 26 *(1960), pp. 35-53.*

12 HBCA, MG20, B/39/a/1-5b, op. cit., some examples include, 16 August, 20, 23 and 30 September 1802, 28 September 1803ff.

13 E.E. Rich, ed., *Journal of Occurences in the Athabasca Department by George Simpson, 1820 and 1821, and Report* (Toronto: The Champlain Society, 1938), p. 470.

14 HBCA, MG20, B/41/1-3, op. cit., "Mansfield House and Chiswick House Post Journal(s), 1802-6," by Thomas Swain, 10 May 1803.

15 Ibid., 4 October 1802, 10 May, 8 June, and 5 October 1803.

16 Ibid., B/39/a/1, op. cit., 17 September 1802.

17 Ibid., 18 and 19 September 1802.

18 Ibid., 21 September 1802.

19 Ibid., p. 70, "Nottingham House Post Provisions, 1803."

20 Ibid., B/39/a/1-5a, op. cit., 11 and 16 August and 20 September 1802, 20 March, 15 April, 7 May, 3 and 28 September 1803, 18 May and 7 December 1805.

21 Ibid., 14 September 1803; and 29 September and 30 December 1803.

22 Ibid., 12 January 1805; 7 November 1802; and 8 November 1802, and 13 February and 17 April 1805.

23 HBCA, MG20, B/39/a/2, "Draft Journal [Nottingham House], 1802 and 3 by Peter Fidler," 2 December and 16, 19 and 20 November 1802.

24 W. O'Meara, op. cit., pp. 217 and 223-24.

25 J.C. MacGregor, op. cit., p. 252.

26 HBCA, MG20, B/39/a/1, op. cit., 15 August 1802.

27 Ibid., 15 August 1802, 5 and 9 May 1803.

28 Ibid., 14 September 1802.

29 Ibid., 7 and 13 October 1802.

30 Ibid., 23 January and 27 March 1803.

31 Ibid., 19 March 1803.

32 Ibid., 31 March and 15 May 1803.

33 Ibid., 16 May 1803.

34 Ibid., MG20, B/39/a/3, op. cit., 8 and 24 August 1803.

35 Ibid., 12 September 1803.

36 Ibid., 16 September 1803.

37 Ibid., 21 September, and 2, 3 and 4 October 1803ff.

38 Ibid., 26 September, 20 and 31 October 1803, and 13 January 1804.

39 Ibid., 19 December 1803.
40 Ibid., 4 April 1804.
41 Ibid., 20 May 1804.
42 Ibid., 23 April 1804.
43 Ibid., 20 May 1804.
44 Ibid., MG20, B/39/a/4, "Nottingham House Athapiscow Lake Journal with Meteorological Journal of the Weather, 1804 and 5 by Peter Fidler," 3 August 1804.
45 Ibid., 22 August, and 11 September, and 12 January 1805.
46 Ibid., 7 September 1804 and 28 March 1805.
47 Ibid., 1 March 1805.
48 Ibid., 6 and 11 May 1805.
49 Ibid., 19 May 1805.
50 Ibid., 12 and 21 May 1805.
51 Ibid., 24 May 1805.
52 Ibid.; and E.E. Rich, ed., *Simpson's Athabasca Journal*, op. cit., pp. 429-30.
53 Ibid., MG20, B/39/a/5a, "Nottingham House Post Journal, 1805 and 6 by Peter Fidler," 11 September 1805.
54 Ibid., 12 September 1805.
55 Ibid., 25 September 1805.
56 Ibid., 26 and 29 September, and 3 October 1805, and 8, 12, 20 and 29 January, 9 March, and 18 May 1806.
57 Ibid., 25 September 1805.
58 Ibid., 7 December 1805ff.
59 Ibid., 2 October 1805.
60 Ibid., 1 January 1806.
61 Ibid., 18 January, 15 February, 12, 13 and 15 March, 7 April, 1 and 13 May 1806.
62 Ibid., 3 May 1806.
63 Ibid., 6 June 1806.
64 Ibid.
65 Ibid.

The Years After

1 J.C. MacGregor, op. cit., p. 162.
2 E.E. Rich, ed., *Colin Robertson's Correspondence Book, September 1817 to September 1822* (Toronto: The Champlain Society, 1939), Intro. xxxvii.
3 Ibid., Intro. xxiv.
4 Ibid., Intro. xxiii-iv.
5 J.C. MacGregor, op. cit., p. 174; and E.E. Rich, *The History of the Hudson's Bay Company*, op. cit., Vol. 2, p. 292.
6 E.E. Rich, *The History of the Hudson's Bay Company*, op. cit., Vol. 2, pp. 290-91, 293; E.E. Rich, ed., *Colin Robertson's Correspondence Book*, op. cit., Intro. xxxii-iii; and, G. Williams, "Highlights in the History of the First Two Hundred Years of the Hudson's Bay Company," *The Beaver* (Autumn 1970), p. 38.
7 Ibid., pp. 291, 293; Ibid., Intro. xxxii; and J.C. MacGregor, op. cit., p. 174.
8 Ibid., p. 299; and, G. Williams, loc. cit., p. 38.
9 G. Williams, loc. cit., p. 38.

10 E.E. Rich, ed., *Colin Robertson's Correspondence Book*, op. cit., Intro. xxvi.

11 HBCA, MG20, B/89/a/12, "Ile à la Crosse Post Journal, 1810-11, by Peter Fidler."

12 G.G. Cline, *Peter Skene Ogden and the Hudson's Bay Company* (Norman: Univ. of Oklahoma Press, 1974), p. 13.

13 HBCA, MG20, B/89/a/12, op. cit., August 1810.

14 Ibid., 25 October 1810.

15 Ibid.

16 Ibid., November 1810.

17 J.C. MacGregor, op. cit., p. 175.

18 E.E. Rich, ed., *Colin Robertson's Correspondence Book*, op. cit., Intro. xxiii. Rich mistakenly states that Auld made this statement following the withdrawal of Fidler from Ile à la Crosse in 1809, when in fact he was at Reindeer Lake and Split Lake House in that year, and left Ile à la Crosse in June 1811.

19 Between 1815 and 1821 the Hudson's Bay Company made three further, but unsuccessful attempts to establish and compete in the Athabasca fur trade. The first foray was led by John Clarke, a veteran of the Athabasca and Pacific fur trade, who established Fort Wedderburn on Coal (later Potato) Island, near Fort Chipewyan in 1815. Clarke was arrested twice and the Hudson's Bay Company men nearly starved. By the summer of 1817 the expedition was a complete failure. The redoubtable Colin Robertson waged a hectic campaign in the Athabasca in 1818-19, after re-establishing Fort Wedderburn. Robertson was captured by the seemingly omnipresent Samuel Black, and after an exciting series of detentions and escapes he finally sailed for England in November 1820 and did not return to Canada until after the amalgamation of 1821. George Simpson journeyed to Fort Wedderburn in 1820-21, but the Hudson's Bay Company was able to establish a reasonable trade in the Athabasca only after the amalgamation of 1821. Fort Chipewyan became the Hudson's Bay Company Depot in the Athabasca District. For a brief account of these years, consult E.E. Rich, ed., *Journal of Occurrences in the Athabasca Department by George Simpson, 1820 and 1821, and Report* (Toronto: The Champlain Society, 1938), esp. Intro. "Deadlock in the Fur Trade: War in the Athabasca [1815-21]," xxx-ix, and p. 426 (Fort Wedderburn), pp. 433-35 (John Clarke), and pp. 461-63 (Colin Robertson); E.E. Rich, ed., *Colin Robertson's Correspondence Book*, op. cit., Intro. x/iii-cxx; and, E.E. Rich, *The History of the Hudson's Bay Company*, op. cit., Vol. 2, pp. 333-83.

20 W.S. Wallace, "Notes of an 18th Century Northerner," *The Beaver* (June 1952), p. 40.

21 J.C. MacGregor, op. cit., pp. 184-85.

22 For details on Selkirk see, J.M. Gray, *Lord Selkirk of Red River* (Toronto: The MacMillan Co., 1963).

23 For details on the Red River colony see, A. Ross, *The Red River Settlement: Its Rise, Progress, and Present State with some Account of the Native Races and its General History, to the Present Day* (London: Smith and Elder, 1856); G. Bryce, *The Remarkable History of the Hudson's Bay Company* (Toronto: William Briggs, 1900), esp. Chapter xxiii, "Lord Selkirk's Colony," pp. 202-50; J.P. Pritchett, *The Red River Valley, 1811-49; A Regional Study* (New Haven: Yale Univ. Press, 1942); and G. Williams, loc. cit., pp. 38-43.

24 A.S. Morton, "The Place of the Red River Settlement in the Plans of the Hudson's Bay Company," *Canadian Historical Association, Report for 1929*, p. 105; W.L. Morton, *Manitoba: A History* (Toronto: Univ. of Toronto Press, 1957), p. 44.

25 E.E. Rich, *The History of the Hudson's Bay Company*, op. cit., Vol. 2, p. 301.

26 J. Parker, "The Fur Trade and the Chipewyan Indian," *The Western Canadian Journal of Anthropology*, Vol. 3, No. 1 (1972), p. 53; and also, E.E. Rich, ed., *Colin Robertson's Correspondence Book*, op. cit., Intro. xxxii and iv; and G. Williams, loc. cit., p. 39.

27 E.E. Rich, ed., *Colin Robertson's Correspondence Book*, op. cit., Intro. vi; M. MacLeod and W.L. Morton, *Cuthbert Grant of Granstown* (Toronto: McClelland and Stewart Ltd., 1974), pp. 13-15 and 20-21; and G. Williams, loc. cit., p. 39.

28 E.E. Rich, ed., *Colin Robertson's Correspondence Book*, op. cit., Intro. viii-ix. Simon McGillivray to Wintering Partners, 9 April 1812.

29 G. Bryce, op. cit., pp. 209-12.

30 D.W. Thompson, op. cit., p. 199; and A.S. Morton, op. cit., p. 553.

31 M. MacLeod, op. cit., pp. 20-23; and for a full treatment of the Métis see: M. Giraud, *Le Métis Canadien: Son Rôle dans l'Histoire des Provinces de l'ouest* (Paris: Travaux et Memoires de l'Institut d'Ethnologie, 1945).

32 Manitoba. Provincial Archives [hereafter cited as PAM], Vol. 69, "Selkirk Papers," Miles Macdonell to Lord Selkirk, 1814.

33 J.B. Tyrell, "Peter Fidler, Trader and Surveyor, 1769 to 1822," *Proceedings and Transactions of the Royal Society of Canada* (Ottawa: J. Hope & Son, 1914), Vol. 7, Third Series, p. 127.

34 W. O'Meara, op. cit., p. 280.

35 Ibid., p. 281.

36 PAM, Vol. 69, Peter Fidler, "Journal Kept at Red River 22 July 1814-16 July 1815," 25 June 1815.

37 Ibid.

38 Ibid.

39 M. MacLeod, op. cit., pp. 31 and 38.

40 PAM, Vol. 69, "Selkirk Papers," Peter Fidler, "Narrative of the Re-establishment, Progress and Total Destruction of the Colony in Red River, 1816"; see also, M. MacLeod, op. cit., pp. 42-43.
41 M. MacLeod, op. cit., pp. 44-52; and G. Williams, loc. cit., p. 40 (Map).
42 W.L. Morton, op. cit., pp. 55-7.
43 G. Williams, loc. cit., p. 43.
44 Ibid.
45 G. Bryce, op. cit., p. 283.
46 J.C. MacGregor, op. cit., p. 237, P. Fidler, "Journal at Fort Dauphin, 1819-20," 3 November 1829.
47 HBCA, MG20, D/4/86, "George Simpson, Official Reports to the Governor and Committee in London [England], 1 September 1823."
48 J.B. Tyrrell, loc. cit., p. 127.
49 J.C. MacGregor, op. cit., pp. 241-46.
50 E.E. Rich, ed., *Simpson, Athabasca Journal*, op. cit., Intro. 1.
51 Ibid., Intro, /v; and G. Williams, loc. cit., p. 46, and for details on "Coalition," pp. 44-48.
52 N. Garry, "Diary of Nicholas Garry, Deputy-Governor of the HBC, 1822-35. A detailed narrative of his travels in NWT of BNA in 1821," *Proceedings and Transactions of the Royal Society of Canada* (Ottawa: J. Hope and Son, 1900), Vol. 6, Third Series, p. 180.
53 E.E. Rich, ed., *Simpson, Athabasca Journal*, op. cit., p. 221 (January 1821).
54 S. Van Kirk, loc. cit., p. 8.
55 Ibid.
56 HBCA, MG20, E/4/1, "Registers of Baptisms, Marriages and Burials, 1820-41," 14 August 1821; and N. Garry, loc. cit., p. 146.
57 G. Bryce, op. cit., pp. 284-85.
58 J.C. MacGregor, op. cit., p. 254. Norway House, 23 August 1821.
59 HBCA, MG20, B/239/1/82, "York Factory Correspondence Book, 1821-2."
60 Ibid., D/4/86, op. cit., 1 September 1823.
61 Ibid., D/4/87-8, 10 March 1825.
62 Ibid., E/4/1, op. cit., 20 June 1826.
63 J.C. MacGregor, op. cit., pp. 256-57; and W.S. Wallace, "Two Curious Fur-Trade Wills," *The Beaver* (June 1943), p. 37.

Appendix A. The Fisheries at Nottingham House, Lake Athabasca, 1802-1806: A Brief Look

1 HBCA, MG20, B/39/a/1, 21 September 1802.
2 Ibid., 6 November 1802.
3 E. Krause, "The Fisheries of Fort Chipewyan." Manuscript on file, National Historic Parks and Sites Branch, Parks Canada (Ottawa, 1972), p. 9.
4 HBCA, MG20, B/39/a/1, 9 December 1802.
5 Ibid., 5 January 1803.

[6] Ibid., 14 April 1803.
[7] Ibid., B/39/a/3, 14 September 1803.
[8] Ibid., 29 September 1803.
[9] E. Krause, op. cit., p. 15.
[10] HBCA, MG20, B/39/a/4, 12 January 1805.
[11] Ibid., 17 April 1805.
[12] Ibid., B/39/a/5a, 11 September 1805.
[13] E. Krause, op. cit., p. 19.

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Section B: Post Records and Journals
MG20, B/20/a/1, Peter Fidler, "Bolsover House Post Journal, 1799-1800"
MG20, B/22/a/10-15, Peter Fidler, "Brandon House Post Journal, 1812-19"
MG20, B/34/a/1, Peter Fidler, "Chesterfield House Post Journal, 1800-2"
MG20, B/39/a/1, Peter Fidler, "Journal from Cumberland House to the Athapescow Lake, also, the Journal kept at Nottingham House in the said Lake, together with Astronomical and Meteorological Observations made at the same place in the years 1802 & 3"
MG20, B/39/a/2, Peter Fidler's Journal, 1801-3
MG20, B/39/a/3, Peter Fidler, "Fidler Journal, 1803-4"
MG20, B/39/a/4, Peter Fidler, "Nottingham House Athapiscou Lake Journal with Meteorological Journal of the Weather, 1804-05"
MG20, B/39/a/5a, Peter Fidler, "Nottingham House Post Journal, 1805-6"
MG20, B/39/a/5b, Peter Fidler, "Draft Journal kept at Fort Chipewyan (Nottingham House), 1803-5"
MG20, B/41/a/2, Thomas Swain, "Chiswick House Post Journal, 1802-4. Mansfield House Journal (Peace River)"
MG20, B/41/a/1, Thomas Swain, "Chiswick House Journal (Slave River), 1803-4"
MG20, B/41/a/3, Thomas Swain, "Chiswick House Post Journal (Slave River) 1805-6, with Meteorological Observations"
MG20, B/51/a/3, Peter Fidler, "Dauphin House Post Journal, 1819-21"
MG20, B/89/a/12, Peter Fidler, "Ile à la Crosse Post Journal, 1810-11"
MG20, B/154/a/15, Peter Fidler, "Norway House Post Journal, 1821"

MG20, B/156/a/2, Peter Fidler, "Oxford House Post Journal, 1802"
MG20, B/239/b/49, "York Factory Correspondence Book, 1788-9"
MG20, B/239/b/50, "York Factory Correspondence Book, 1789-90"
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MG20, D/4/86-88, "George Simpson, Official Reports to the Governor and Committee in London, 1823, 1824, 1825
Section E: Miscellaneous Records
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MG20, E/3/2, Peter Fidler, "Journal of a Journey Over Land from Buckingham House to the Rocky Mountains in 1792-3"
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